

# MOTOR AGE

*The Making  
of the  
Race  
Driver*

*The American  
Crop*

By C. G. Sinsabaugh

IT REQUIRED the publication of the entry list for the 500-mile race which takes place at Indianapolis next Tuesday to make the motoring public realize that the present crop of American racing drivers is of high-class caliber and that in the climb to the top of the ladder, which is symbolical of fame in the sporting sense, America has outstripped Europe, its teacher. An unbiased study of the world's racing situation cannot help but convince everyone that the Yankee drivers, taking them as a whole, far outclass their brethren on the other side of the ocean. They possess the daring which is so essential to success in this profession; they can claim mechanical knowledge of the highest caliber; and they drive cars of American manufacture that possess stamina and speed equal, if not superior, to the for-

eign product. That this combination is a winning one is shown by the record table of the world, for no longer do the foreign drivers wear all the laurel wreaths as they used to do in the earlier days of the sport.

America owns all the world's straightaway records, including the blue ribbon, Burman's mile in :25.4, which is equal to 141 miles an hour; America owns all the dirt track marks of value.



And when it comes to speed honors, it can claim more than an equal division of the spoils. About all that stands to the credit of the foreigners are the exceptional times made at Brooklands, in England, by Hemery and Edge, and in this instance the track, more than the driver or car, was the important factor. Given a track in this country banked high enough to stand the terrific speed at which Hemery traveled when he smashed the short distance marks, and Burman or some other American pilot undoubtedly could beat them. In the case of Edge's great 24-hour mark of 1,581 miles 1,310 yards, that does not look so wonderful as it did a couple of years back.

Already in this country 1,491 miles has been made in the journey twice around the clock, a performance which can be compared favorably with Edge's efforts for two reasons. The first is that it was made in actual competition, with the win-

teen of the winning cars were made in Yankee factories.

America has made this climb to the top by dint of perseverance and an improvement of the motor product which has put the Yankee car on a par with the foreign makes. In the days when the Gordon Bennett cup race was symbolical of the world's speed championship America cut a sorry figure, indeed. Several times Americans crossed the Atlantic to strive for road racing supremacy with the foreign flock, but each time it proved a sorry quest for international honors. Year after year it was a foreign car and a foreign driver that lifted the cup, and America's greatest boast so far as honors go in connection with the Bennett cup race was that in 1905 Herb Lytle in a Pope-Toledo actually finished the race, the first time an American ever caught the judges' eyes at the end of the struggle in the Bennett cup race.



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ner having to continually weave his way through a field of ten or twelve cars; and, second, because the track on which it was made only was 1 mile in circumference, as compared with the 2 3/4-mile oval at Brooklands. True, it was a foreign car, a Fiat, that put up this startling performance, but it must not be forgotten that the runner-up was a car of American manufacture, a 30-horsepower Cadillac, which reeled off 1,448 miles and did it without mechanical mishap. If a 30-horsepower car can come within 133 miles of Edge's record and do it in a race, it stands to reason that a special time trial by a higher powered American car would topple over the mark made by Edge in 1907.

#### Speed on the Road

Passing on to the road racing department, it is discovered that here the American driver is making heavy inroads. There have been thirty-one road races won at better than mile-a-minute speed in the history of the world's sport, and of this number twenty of them have been run in this country. Sixteen of the twenty drivers have been American, while four-



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It was the same story on our own soil in those days in connection with the Vanderbilt cup race. Foreign cars won in the earlier days of the cup struggle, and the names of Heath, Wagner and Hemery, which are inscribed on the big mug, tell of the futile struggles of the Yankee pilots. It was not until 1908, when George Robertson in a Locomobile trimmed the foreigners in this classic, that the tide turned in America's favor. Harry Grant with the Alco followed it up with victories in 1909 and 1910, while another clincher was at Savannah last fall, when David Bruce-Brown won the American grand prix. In this instance it was a victory of an American driver instead of a Yankee car over the pick of the foreigners, for among Brown's victims were the stars of the European racing world, Nazzaro, Wagner and Hemery, undoubtedly the greatest drivers Europe ever produced. This victory of the young millionaire placed America on an even footing with the for-

- 1-Ray Harroun
- 2-L. A. Disbrow
- 3-Ralph Beardsley
- 4-Teddy Tetzlaff
- 5-G. H. Anderson
- 6-W. H. Jones
- 7-W. Endicott
- 8-Lewis Strang
- 9-Herbert Lytle



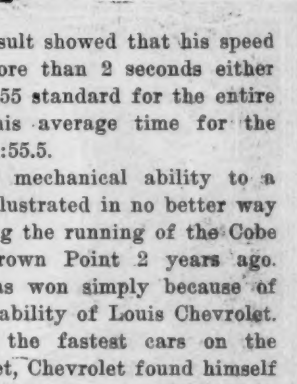
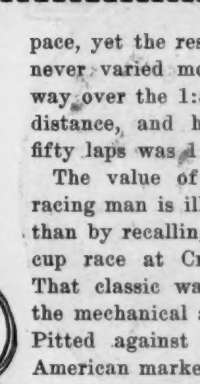
eigners, and from now on it is going to be a battle among the best pilots of the two continents for the world's honors.

Within the past year or so American drivers have given more consideration to the science of the game of racing. They realize that a successful driver is born, not made, and that therefore America should have a better chance than Europe, for on this side of the Atlantic racing is at its zenith, while across the water the interest has lagged considerably within the last few years. Whether this will continue or not is problematical. France has dipped into the sport again, and its light-car race, which is scheduled for the latter part of June, has attracted an astonishing entry list, which promises something for the revival of the sport there, while the entry of three American cars, two Nationals and a Marquette-Buick, into the French grand prix, which is to be run July 9, may have considerable bearing on

a wealthy young chap from the east, who aspired to become a race driver. He possessed the wherewithal to purchase a dozen cars if he so desired, but upon applying for a position as a driver at the National factory he was told that he would have to start from the bottom. Nothing daunted, he joined the testing force, and for more than 6 months this son of a rich family wore the overalls of a mechanic as a factory employee. Now his reward comes in his appointment as a reserve driver in the 500-mile race next week at Indianapolis.

#### Judgment of Pace

Another example of a necessary attainment, the judging of pace, which is so essential to a good race driver, is furnished by Charley Merz during his training for the big sweepstakes. It is reported that Merz recently worked out for fifty laps on the speedway in an effort to average 1:55 per lap. He had no speedometer on the car with which to judge his



the situation as promising an invasion of Europe by American manufacturers, which may cause foreign makers to race in order to stall off the enemy.

#### Racing As a Profession

American drivers have started systematically about making race driving a profession, and the result is apparent. No longer are the top-notchers men of little experience in racing; they are men who have achieved their present position only by a long apprenticeship, which includes a lowly start and which means a long climb to the top. The average American driver nowadays starts in as a tester at some factory. Before he is given a chance at the wheel he must prove his capability. He must be daring, yet conservative; he must be an excellent judge of pace, and he must know everything about the mechanical construction

of the car he drives. All that takes time. The climb of the average aspirant is no better illustrated than in the case of young Arthur Beck,

pace, yet the result showed that his speed never varied more than 2 seconds either way over the 1:55 standard for the entire distance, and his average time for the fifty laps was 1:55.5.

The value of mechanical ability to a racing man is illustrated in no better way than by recalling the running of the Cobe cup race at Crown Point 2 years ago. That classic was won simply because of the mechanical ability of Louis Chevrolet. Pitted against the fastest cars on the American market, Chevrolet found himself in trouble at half the distance. The Buick he drove had overhead valves and one of them broke, punching a hole in a piston. Most any other driver would have quit right there, but not Chevrolet. He removed a spark plug to relieve the compression on that cylinder, and continued the race. Limping on three cylinders for nearly half the distance, he came home a winner by a scant margin over poor Billy Bourque, in the Knox. In this same race there occurred another incident which shows how important mechanical ability is in a racing way and how a wrong diag-

- 1—Ralph Mulford
- 2—Joe Dawson
- 3—Joe Jagersburger
- 4—John Jenkins
- 5—J. F. Gelnaw
- 6—Harry Grant
- 7—W. H. Pearce
- 8—Caleb Bragg
- 9—Johnny Altken



that would entitle him to rank as an all-around champion. For instance, the record of last year shows that Ray Harroun easily was the speedway champion, while on the road he made a remarkably poor showing. On the other hand, Ralph Mulford was without a peer in road contests and did only passing well on the speedway. On the dirt tracks and in speed trials on that little oval none could touch Ralph de Palma. In record trials, where only pure speed counts, Bob Burman easily scooped the cream. In each of these departments, however, the champion is so closely pushed by his rivals that his margin on the title is so close that he hasn't much to spare.

If one were to compile a role of honor and place thereon the names of the thirty-five best drivers in the American racing game at the present time this list undoubtedly would contain the names of Johnny Aitken, Caleb Bragg, Bob Burman, Charles Basle, David Bruce-Brown, Fred Belcher, Louis Chevrolet, Joe Dawson, Bert Dingley, Ralph de Palma, Louis Disbrow, Bill Endicott, Jack Fleming, Harry Grant, Joe Gelnaw, Arthur W. Greiner, Ray Harroun, Eddie Hearne, R. M. Hanshue, Willie Haupt, H. Harding, Hughie Hughes, Frank Kulick, Herb Lytle, Billie Knipper, Joe Matson, Charlie Merz, Ralph Mulford, W. H. Pearce, C. Patschke, J. Nikrent, George Robertson, Lewis Strang, Teddy Tetzlaff, Howard Wilcox and Len Zengel. Oldfield could be ranked in this division if he was not out of the racing game at the present time.

#### The Foreign Stars

Abroad the list is a small one, including Nazzaro, Wagner, Hemery, Bablot, Rigal, Boillot, Goux, Zuccarelli, Rigolly and Sizare. Old Father Time has decimated the ranks of the European drivers. Death has claimed the star of them all, the late Leon Thery, who was prominent in the Gordon Bennett cup days. Another veteran to cross the great divide was Hubert Le Blon who turned aviator and was killed last year. Le Blon, it will be remembered, was one of the foreign drivers the Thomas company brought over here in 1908 to drive Thomas cars in the Vanderbilt. Le Blon's team mate was Callois who long since quit the racing game. C. S. Rolls, the Englishman, one of the pioneer racing men, met death as an aviator last year, while another Englishman equally prominent in those days, S. F. Edge, has quit the path in order to devote all his time to building cars. The dashing Lancia, the greatest daredevil of them all, also has entered the business world and the racing game knows him no more.

Gone, too, are Cagno, the Italian; Heath, the American who ranked as a European driver; Jenatzky, who

nosis may bring about defeat. One of the contestants had gained an apparently safe lead and looked to have the race cinched, when ignition trouble developed. The driver thought it was the magneto, and although he was told by a pit attendant that it was something else he persisted in changing the magneto. In doing this he lost his big lead and never was a factor in the battle after that. If he had leeded the tip the trouble could have been cured in a minute or so. That this wrong diagnosis hurt the sport to a certain extent is proven, because the defeat brought about the retirement from the racing game of a concern that had been one of the strongest supporters motor racing ever had in this country.

#### The Best American Drivers

Probably America possesses at least 150 drivers who can be ranked in the racing class, but of these not more than one-fourth can be regarded as being topnotchers. Even at that, this percentage is a credit to America, for abroad this stellar division probably is limited to a mere handful—not more than eight or ten at the outside. Going over the list one finds that this 400 of motoring is limited to thirty-five pilots who may be regarded as out of the ordinary when it comes to racing. It would be hard work, indeed, to pick one of them as being head and shoulders above his fellows, for the reason that in no one man is there found qualities

- 1—Fred Ellis
- 2—Hugh Hughes
- 3—Ernest Delaney
- 4—Ralph DePalma
- 5—E. A. Hearne
- 6—C. Basle
- 7—Spencer Wishart
- 8—Bob Burman
- 9—Howard Wilcox
- 10—Howard Hall
- 11—Len Zengel



looked like Mephistopheles; Jarrott, of England, and Hanriot, Fournier and Farnam, the Frenchmen. Jenatzy is not lost altogether, for he once in a while returns to the racing game just to show that he is as clever as of yore, which fact was demonstrated last summer when he put up several remarkable performances in French hill climbs and road trials. Lautenschlager, the German who won the last French grand prix in 1908, only was a flash in the pan, and since that one big victory no one has heard of him on this side of the water. Fiery little Szisz, once one of France's best, has quit for keeps.

#### Climb of the Stars

Few there are among the Americans who have not started as testers for some motor car concern. Of these few David Bruce-Brown probably is the greatest exception. While yet a school boy he ran away to Ormond, Fla., where a beach meet was being held, where he became a favorite of Cedrino. The boy knew considerable about a motor car and prevailed upon Cedrino to permit him to drive the Fiat Cyclone in a trial against the amateur mile record. He cut it and that was the start of David Bruce-Brown, who last year won his spurs when he captured the grand prix road race at Savannah from the most brilliant field an American road race ever has had. Caleb Bragg, another rich young chap, did not start as a tester, but he hung around a machine shop long enough to gain a knowledge of motor car construction that since has been invaluable to him. Ray Harroun is an engineer by profession, and he was in and out of the industry so often that it was unnecessary for him to learn the rudiments of driving from a tester's seat—it came to him intuitively.

Herb Lytle and Bert Dingley date back to the days of the first Vanderbilt. Lytle drove in that and in subsequent events and for several years Dingley was his mechanic. Then came the Pope-Toledo invasion of Europe and both Lytle and Dingley drove in the Gordon Bennett cup race. Lytle perhaps has driven more Vanderbilts than any other man, while year before last Dingley had the best record on the road of any American driver. Lewis Strang was at his best in 1908, when he won in rapid succession the Savannah, Briarcliff and Lowell road races, an exceptionally brilliant record. Grant has to his credit two Vanderbilt cup victories, won in succession, which is a record no other man possesses. Last year was Ralph Mulford's best and his biggest victory

was the winning of the Elgin National trophy at Elgin. Louis Chevrolet, a veteran, scored his greatest victory when he won the 1909 Cobe cup race, while in 1909 he established a record pace of 69.6 miles an

hour in the Riverhead road race which was run on Long Island.

Bob Burman, former team mate of Caerole's, has been racing since 1905, but it was not until this spring that he was crowned speed champion, which honor was given him when he successfully tackled the straightaway mile record at Daytona. Joe Matson did his best work in the Indiana trophy race at Crown Point in 1909, which he won handily, while Billy Knipper won the Tiedeman trophy at Savannah last fall. Joe Dawson is one of the 1910 crop and his best work has been done on the speedway, in which he has won several sensational races, one of which was the Cobe cup event. Harroun is the holder of the famous Wheeler & Schebler \$10,000 trophy and the holder of many speedway records.

Johnny Aitken has been the mainstay of the National team for the last 2 years, and in the 1910 Vanderbilt he was third to the first of Grant and second of Dawson. He also was placed in the Fairmount park cup race in which event he won his class. Caleb Bragg jumped into prominence when he defeated Barney Oldfield in a match race at Los Angeles a year ago. Later he was quite successful on short distance work on the speedways and particularly good in hill-climbs. Ralph de Palma is a versatile driver, equally at home on track, speedway or road. He holds nearly all the dirt track short dis-



- 1—Frank P. Fox
- 2—Walter Jones
- 3—C. B. Baldwin
- 4—Fred Belcher
- 5—Bert Adams
- 6—Lee Frayer
- 7—Charles Merz
- 8—W. H. Turner
- 9—Harry Knight
- 10—David Bruce-Brown
- 11—H. H. Cobe

# Indianapolis Ready for Big Race

tance records, while his name figures quite prominently in the speedway tables.

Eddie Hearne is one of those youngsters who started with a bank roll that jumped him into the driver's seat without the necessity of taking the tester's course. He is the holder of the Indianapolis speedway helmet in which event he scored sensationally by averaging 86.37 miles per hour for 15 miles. Bill Endicott won the Masapequa trophy at the Vanderbilt meet last fall and preceding that he did well in the small-car events at Los Angeles in the spring of 1910. Wilcox promises to be one of the greatest of American drivers, although he only has been in the limelight for the past year. He is one of the crop of Indianapolis stars, which includes Aitken, Dawson and Merz. Gelnow and Pearce are two Chicagoans who are consistent performers, the former winning the Wheatley Hills cup on Long Island last fall with Pearce being the runner-up. Gelnow also won the Coca Cola cup at the Atlanta speedway last year.

## Three Stars Killed

When the curtain goes up on the opening day of the racing season next Tuesday, it will be discovered that three of the old favorites are missing, all of them victims of the grim reaper. Death has claimed Tom Kincade, Al Livingstone, and Tobin De Hymel. Kincade was killed while training on the Indianapolis speedway last July, while Livingstone, winner of the Illinois cup at Elgin, met death at Atlanta while training for the speedway events there. De Hymel, one of the most promising of the younger generation of drivers, was killed on a dirt track in Texas while driving in a handicap race.

## LONG ISLAND WINS TEAM MATCH

New York, May 23—Opening the metropolitan sporting season the Long Island Automobile Club and the Crescent Athletic Club ran off the first sporting event about New York this year in an interclub contest to Riverhead, Long Island, and return on Saturday and Sunday. The run was approximately 350 miles long and was a sealed bonnet affair for teams composed of club members driving their own cars. The Long Island Automobile Club won the trophy with six clean scores and one disqualification, which made its total penalization 300 points, or an average of over 42 demerits. The Crescents suffered one disqualification and other penalties amounting to 575 demerits, or an average of 52 points for its eleven representatives. The cars taking part for the Long Island Automobile Club included the following: Regal, Buick, Royal, Stevens-Duryea, Pope-Hartford, Chalmers and Stearns. The Crescent team drove Franklin, Chalmers, Marmon, Buick, Stearns, Locomobile, two Palmer-Singers, Maxwell and Hudson. A. R. Par-dington acted as referee.

## Speedway Management Has Provided Seats for 50,000 People on Memorial Day and Has Arranged With Citizens to Take Visitors Into Private Homes—Parking Space for 600 Cars

### ENTRIES IN 500-MILE RACE

Car	Driver
Case	Lewis Strang
Simplex	Ralph de Palma
Inter-State	H. Endicott
National	Johnny Aitken
Pope-Hartford	Louis Disbrow
Pope-Hartford	Frank P. Fox
Westcott	Harry Knight
Case	Joe Jagersberger
Case	Will Jones
Stutz	Gilbert Anderson
Mercedes	Spencer Wishart
Amplex	A. W. Greiner
Fal	W. H. Pearce
Fal	J. F. Gelnow
Knox	Fred Belcher
Buick	Arthur Chevrolet
Buick	Charley Basie
Fiat	Eddie Hearne
Alco	Harry Grant
National	Charley Merz
National	Howard Wilcox
McFarlan	Fred Clemens
McFarlan	Bert Adams
Jackson	Fred Ellis
Jackson	Harry Cobe
Jackson	Jack Tower
Cutting	Ernest Delaney
Fiat	David Bruce-Brown
Lozler	Harold Van Gorder
Firestone-Columbus	Lee Frayer
Marmon	Joe Dawson
Marmon	Ray Harroun
Lozler	Ralph Mulford
Lozler	Teddy Tetzlaff
Apperson	Herb Lytle
Mercer	Hughie Hughes
Mercer	Charles Bigelow
Simplex	Ralph Beardsley
Fiat	Caleb Bragg
Velle	Arthur Gibbons
Velle	Howard Hall
Cole	Bill Endicott
Cole	Johnny Jenkins
Amplex	Joe Horan
Benz	Bob Burman
Benz	Billy Knipper

INDIANAPOLIS, Ind., May 22—Every arrangement has been completed for the 500-mile international sweepstakes to be held on the Indianapolis motor speedway May 30. If the race were to be held tomorrow, the speedway and the speedway management are ready, and it is said the surface of the track never has been in better shape.

There are two things the speedway management wishes to impress on the coming visitors for the race: First, that there are still plenty of good seats on sale for the race, and will be on the day of the race itself, and second, that every visitor will be accommodated with a room at a reasonable rate. It is estimated that the race will bring from 60,000 to 100,000 persons to the city, and the speedway management is arranging to have not merely enough seats and rooms for visitors, but more than enough.

## Roads Have Been Marked

Roads from Louisville and Chicago to Indianapolis have been posted with guide signs. These are round metal signs with a blue field on which, in white, appears a hand directing the way to Indianapolis.

At cross roads a sign has been placed on each side of the road.

While it is true every reservation has been taken in the hotels, hundreds of Indianapolis citizens have responded to a call by the speedway management, Commercial Club, Indianapolis Trade Association and Indianapolis Board of Trade for rooms for race visitors. These rooms in private homes will be assigned by Will J. Dobyns, who has charge of the speedway information bureau. It is important that requests for reservations be made in advance, although it is believed there will be ample accommodation for those who do not make reservations in advance. The price of rooms in private dwellings—some of the best homes in the city—will range from \$1 to \$5 a night, the latter being double rooms with bath.

The speedway management has provided seats for 50,000 people. There is paid parking space for 600 cars and there is free parking space in the infield for 10,000 cars. The free parking space will enable visitors to get an excellent view of the race from all angles.

As an auxiliary to the enormous demand on the public garages, the board of park commissioners has set aside the east side of the North Capitol avenue boulevard north of Indiana avenue as free parking space overnight for visitors. These cars will be heavily policed by the Indianapolis police department. Cars placed in this space may not be taken out before 6 a. m. the following day. There will be a system of identification by which there will be no mistake in the delivery of cars, but the city or speedway management will not be responsible for the machines.

## Elimination Trials Friday

Elimination trials in which cars entered must show a speed of 75 miles an hour, will be held from 9 a. m. to 1 p. m. Friday, May 26. A meeting will be held at 8 p. m. Saturday, May 27, in Tomlinson hall, at which the referee and starter will give final instructions. The technical committee will weigh in the cars beginning at 1:30 p. m. Saturday, May 27.

Special train service to the speedway has been arranged with the Big Four Railroad Co. Trains will leave the Union station every ½ hour from 6:30 o'clock to 8:30 o'clock on the morning of the race and every 15 minutes thereafter until after the race. The fare one way will be 10 cents, and 20 cents for the round trip. Cash fares on the train will be the same as if tickets were purchased in advance.

In the workouts on the track, some of



# Starting Field a Difficult Problem

**Pacemaker Will Show Way for a Lap, Then Signal Will Be Fired—Elimination Trials Will Be Held Friday While Burman Will Try for Short-Distance Records on Tuesday**

the coming contestants have shown satisfactory speed. The fastest lap is reported to be 1:38, made by a National. All of the drivers are striving to attain a certain, uniform pace during the race. They believe that a steady pace must be maintained to win the race.

Howard Wilcox and John Aitken, National drivers, recently covered 275 miles in order to test out the tires, and no tire or other trouble was encountered. Harry Grant, driving an Alco, recently made a trial ten laps, or 25 miles. He endeavored to cover each lap in 2 minutes, and in none of the ten laps was he more than 1/2 second off of the 2 minutes.

## Big Prize List Offered

The prize list for the race is the most valuable ever offered and is as follows:

By Indianapolis Motor Speedway: First, \$10,000; second, \$5,000; third, \$3,000; fourth, \$2,000; fifth, \$1,500; sixth, \$1,000; seventh, \$800; eighth, \$700; ninth, \$600, and tenth, \$500.

By Wheeler & Schebler, Indianapolis, if winning car is equipped with Schebler carbureter, \$2,500.

By Findelsen & Kropf Mfg. Co., if cars are equipped with Rayfield carbureters: First, \$2,000; second, \$500; third, \$300, and fourth, \$200.

By the Columbia Lubricants Co., New York, if Monogram oil is used: First, \$500; second, \$250; third, \$150, and fourth, \$100.

By Remy Electric Co., Anderson, Ind., if winning car is equipped with Remy magneto, \$1,000.

By Bosch Magneto Co., New York, if cars are equipped with Bosch magnetos: First, \$500; second, \$200, and third, \$100.

By Emil Grossman Co., New York, if cars used Red Head spark plugs: First, \$250; second, \$100, and third, \$50.

By Dorian Rim Co., New York, if Dorian demountable rims are used: First, \$250; second, \$150, and third, \$50.

By C. F. Splittorf, Inc., if cars are equipped with Splittorf magnetos: First, \$1,500; second, \$750; third, \$500; fourth, \$250, and fifth, \$100.

In addition the speedway company will give to each of the manufacturers or owners of the first ten cars to finish, a handsome bronze plaque, 10 by 21 inches.

## Burman Going After Records

At 9 o'clock on the morning of the race Bob Burman will attempt to lower the world's speedway records of 1/4 mile, 1/2 mile, 1 kilometer and 1 mile. These are now held as follows: 1/4 mile, none; 1/2 mile, 14:08 seconds, held by Hemery in Benz at Brooklands on November 15, 1909; 1 kilometer, 17:76 seconds, made by Hemery at same time and place; 1 mile, 31:32 seconds, made by Hemery in a Benz at Brooklands.

Before starting on these trials Burman will be crowned speed king, with a gold crown given by the Firestone Tire Co. This crown has been made by a New York concern and will be an exact duplicate of the crown to be used at the coronation of King George IV, except as to size. It will be embellished with diamonds, rubies and emeralds.

The race will start promptly at 10

o'clock in the morning, but the speedway gates will be open at 6:30 a. m. To facilitate the scoring the number disks appearing head high and about 12 inches behind the occupants of the cars, will be made in the following color scheme: Cars No. 1 to 9, inclusive, black disks, white numbers. Cars No. 10 to 19, inclusive, white disks, black numbers. Cars No. 20 to 29, inclusive, red disks, white numbers. Cars No. 30 to 46, inclusive, yellow disks, black numbers.

## Getting the Field Away

At 9:55 o'clock bombs will be exploded at 1-minute intervals. As the 10 o'clock bomb is exploded, Carl Fisher, president of the Indianapolis Motor Speedway Co., acting as pacemaker, will start at the head of the contesting cars and set a pace of 40 miles an hour. He will drop out at the pits at the end of the first lap. The cars are to be lined up in rows of eight in the order they were entered for the race. During this preliminary lap, which will not count in the race, the drivers will jockey for position.

When the first of the cars is about 50 feet from the wire at the end of the preliminary lap, Starter Fred J. Wagner will drop his flag. At the same instant an immense bomb will be exploded, unfurling an American flag 20 by 30 feet in size. It is intended to unfurl the flag as the first car strikes the wire.

The timing will be done by the Warner horograph, an electrical device invented by Charles H. Warner, of Beloit, Wis., and manufactured by the Warner Instrument Co. The exact time of every car in the race will be caught every 10 miles.

The scoring will be done with the aid of four Burroughs adding machines in the hands of experts. Two machines will be used for keeping check of the position of every car within 3 seconds after it passes the wire every lap; the other two tapes will be used for keeping a permanent record of the race. In addition to the adding machines, a complete record of the race will be kept in the human voice by means of two Columbia dictaphones used by three experts. The number of every car as it passes will be dictated into the machines.

## Work of the Officials

There will be twenty telephones installed at all of the score boards and announcers' stands in order to carry information to all parts of the course simultaneously. Every transmitter will be kept off of the line with the exception of the instrument used by the chief operator.

There will be four score boards, so placed that every spectator may have a good view of one or more of them. The upper tier of figures will indicate the positions of the cars up to ten. Below will be the numbers of the cars occupying the positions. In the third tier will be the number of miles covered by the leading car and the time of the car in hours, minutes, seconds and hundredths part of a second. One hundred men will be required to operate the score boards.

The staff connected with the gathering and disseminating of information will consist of 100 score board operators, twenty telephone operators, six callers, five adding machine experts, four timing machine experts, six expert scorers, fifteen announcers, ten sheet writers; a total of 175 men.

The leading officials for the race are as follows:

Honorary Referee—R. P. Hooper, Philadelphia.

Referee—A. R. Pardington, New York.

Starter—Fred J. Wagner, New York.

Assistant Starters—George H. Robertson, New York; E. C. J. McShane, New York.

Board of Timers—C. H. Warner, Beloit, Wis.; O. C. Foster, Cleveland, Ohio; Harry Knepper, New York; J. C. Stiles, Indianapolis.

Board of Scorers—John Cox, Terre Haute, Ind.; Frank B. Willis, Indianapolis; William Fisher, Indianapolis; Earl Houck, Terre Haute, Ind.; S. C. Bohannon, Indianapolis.

Board of Judges—Will H. Brown, Indianapolis; Thomas Hay, Chicago; J. J. Cole, Indianapolis; H. O. Smith, Indianapolis; Homer C. Lathrop, Indianapolis; J. W. Hayden, Indianapolis; J. M. Ward, Jr., Indianapolis; C. H. Wallerich, Toledo.

Announcing Director—A. B. Wagner, Indianapolis.

Clerk of the Course—Charles P. Root, Chicago.

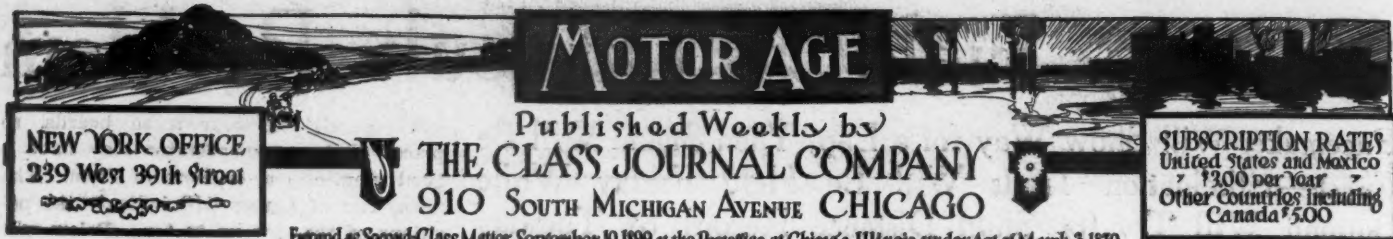
Technical Committee—F. E. Edwards, Chicago, chairman.

## Falcons Will Be Scratched

Chicago, May 22—The Fal Motor Co. today made the announcement that it will be impossible for its two entries in the 500-mile race at Indianapolis to start because of the failure to receive in time the axles that had been ordered. This eliminates Pearce and Gelnaw. It is said suit will be brought against the axle company to recover the \$1,000 entry fees.

## DETROIT PASSES DRASTIC LAW

Detroit, Mich., May 24—Special telegram—The Detroit common council last night passed the Littlefield ordinance by an unanimous vote. This is a drastic traffic law, making it obligatory for motorists to stop before crossing car tracks and to stop before passing a street car which is taking on or discharging passengers. Its effect will, it is believed, drive motor cars off the streets on which there are car tracks. A rigid enforcement of a 12-mile speed limit inside the mile circle and 15 outside is announced by Police Commissioner Croul. The ordinance also prohibits passing street cars to the left. Optional jail sentence is a feature of the new law, which was passed despite protests of all motoring organizations.



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# MOTOR AGE

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## The Big 500-Mile Race

**F**OR many reasons the 500-mile race which will be run on the Indianapolis motor speedway next Tuesday will be of interest not only to the motoring world but to the general public as well. First of all, it will demonstrate most effectively the gigantic steps the sport has taken in the last few years, an advance which rapidly is shedding from motor car contests that tinge of commercialism which has made sporting editors on daily newspapers look on it as a business proposition rather than as a real sport. The race should do much toward dispelling this illusion in the eyes of the critics and make motoring a standard sport, perhaps not in the same class with baseball so far as popularity is concerned, but certainly on a par with the others that are classed as leaders.

**I**T also will give motoring a chance to establish a record for attendance that will make other sports look to their laurels and demonstrate most effectively that there is plenty of red blood flowing through the veins of motorists. Unless all indications fail, there will be an attendance at Indianapolis running between 75,000 and 100,000, which will be an attendance larger than any that ever paid to see a sporting contest in this country. Even national championship baseball games never have drawn crowds of this size, and the only approach to it perhaps is the annual football game between Yale and Harvard. Of course larger crowds have seen the running of the Vanderbilt, but then the big majority never paid a cent outside of what it cost them to get to the course. If motoring can draw the anticipated crowd, then it is certain that it has come into its own as a standard sport.

**A**NOTHER reason that will make the Indianapolis race stand out above its fellows is the system that has prevailed in arranging the details for this great struggle. It is no small task for a city of the size of Indianapolis to care for the flood of visitors which it will have next week, so it is most commendable that its citizens have loyally come to the fore and offered the use of their homes for the accommodation of the strangers. At the track this same careful system again is noted. It is going to be a herculean task first of all to get such an immense field under way and then it is going to require extraordinary efforts to keep track of the progress of each car contesting. But all that seemingly has been arranged for in a businesslike manner, and it is more than likely Indianapolis will set a record in this line which long will be held up as a model of systematic management of a big sporting event.

**I**T may be asked by some pessimists what such a race is going to prove. That's easily answered. As an advertisement for motoring nothing ever attempted before this can touch it. It will infuse human interest into the sport; it will demonstrate the stamina of the motor car; it will, it is hoped, demonstrate that American-made cars can more than hold their own with those of foreign construction, although the European representation is not as large as desired; it will give the American drivers an opportunity to dispel the illusion that the best pilots are to be found on the other side of the Atlantic; and it will give a chance to draw comparisons between foreign and American speedways which may redound to the credit of the latter. As for the manufacturers, they should profit by the race because of the lessons that will be taught. They can ascertain from a study of the results and the report from the pits the weaknesses to which the modern car is heir and in the future can guard against them in turning out future models.

## Good Roads Enthusiasm

**O**THER irons than the 500-mile race are in the motor fire, and it is refreshing to turn to the basic need of the sport and industry and realize that this great country of ours is at last alive to the good roads proposition and that not only are motorists working to bring about an improvement of the highways, but that the government is doing all it can in this direction. It is gratifying indeed to read the report of Logan Waller Page, published in the previous issue of Motor Age, which shows that so much enthusiasm has been aroused over roads that from now until the snow of next winter stops the work more than \$1,000,000 a day will be spent upon road making and road improvement by the various states in the Union. What the ultimate results will be cannot be forecasted now, but certain it is that such a vast fortune spent solely upon roads ought to bring about a wondrous change in our highways before another year rolls around.

**F**ROM coast to coast the wave is sweeping everything before it. Farmers who heretofore have been against good roads because they would be used by motorists have joined the ranks. They are motorists themselves now and besides they have had their eyes opened as to what good roads really mean to them in getting their product to market. Railroads have joined in the chorus, strange as it may seem, and are advocating improving the highways, realizing that if the farmer has good roads he can reach the railroads easier and ship his grain and wheat. The railroads profit by this by having their traffic uniform throughout the year instead of having a rush at intervals which taxes them to the limit to care for.

**J**UST now the demand is for trunk roads across states, and it did not need the bill introduced into congress by Representative Hobson calling for two highways crossing the country to call attention to this. Iowa has been a pioneer in this advocacy of cross-state roads and undoubtedly the example of the Hawkeyes in laying out their famous river-to-river road has been the most valuable educational example that has been offered since motorists took up the subject of roads. Nebraska now has joined in the movement; so has Missouri, Illinois and others, and it will not take long to have the entire country ablaze with enthusiasm.

**A**LL this is most commendable from a national viewpoint, but one of the straws which show the direction of the wind is local interest, and this is no better illustrated than in the case of Chicago, which at last became ashamed of itself and has started housecleaning. While Chicago has a magnificent boulevard system, probably second to none in the world, its exits are notoriously poor and long have been a handicap to motoring. But the powder was set off a month back when the Chicago Motor Club, selfishly interested perhaps because of being the promoter of the national stock chassis road races, undertook to have the road between Chicago and Elgin oiled this summer. Right on the heels of this the citizens of Joliet undertook to have the road to Chicago repaired so it would be a popular motoring thoroughfare. The wave kept on and next in line is another Chicago suburb, Blue Island, which wants its Chicago road repaired. To top it all off, the north side has aroused to life and wants to fix up Sheridan road, which is in such condition now that motorists go out of their way to avoid it. Of course this applied to only one community, but it simply shows that by keeping everlastingly at it that it will not take long to arouse the entire country to the need of good roads.



# Last of Elgin Road Permits Secured

CHICAGO, May 21—Everything is clear sailing for the national stock chassis road races of the Chicago Motor Club at Elgin, August 25-26, so far as permission to use the highways is concerned. The signatures of all the property owners save one had been secured some time ago, but last week the person who had held out—an aged woman, whose objection to signing was based upon the fact that last year she failed to get a couple of complimentary tickets which had been promised her—gave in and completed the chain. Following this, the Elgin Automobile Road Race Association renewed its activities in preparing the course for the big contest.

Efforts now are being made to oil the road from Chicago to Elgin, so that those who make the trip to the road racing carnival will have a highway that will be a model of its kind. The Elgin Commercial Club and Chicago Motor Club are co-operating in this respect and practically have agreed to raise the money for the oiling. Before this is done, however, the road itself must be put into condition, which was the reason the Chicago Motor Club made a trip over the stretch yesterday. In the party were several of the Cook county commissioners, within whose jurisdiction the main part of the road lies. The commissioners were interested in the project and have agreed to pay part of the expense of fixing the road, providing the road commissioners in the various townships along the road will do likewise, which seems more than likely.

This step has resulted in the general agitation for highway improvement in and around Chicago. The Chicago-Joliet route is to be fixed up largely through the efforts of the Will County Automobile Club of Joliet, while a new club which was formed last week at Blue Island is attempting to macadamize a 5-mile stretch from Morgan Park to Blue Island, which is one of the exits out of Chicago into Indiana. On the north side an association of prominent property owners has been formed to improve Sheridan road, which has been in a deplorable condition for several years.

The Blue Island Automobile Club, just formed, has R. D. Roggedean as president, C. W. Rohe as vice-president, C. Krueger as secretary and A. L. Cord as treasurer.

## BLAZING AFFILIATION TOUR ROUTE

Detroit, Mich., May 22—The official pathfinding car for the affiliation tour of the Wolverine Automobile Club left Detroit Saturday morning, bound for Toledo, Cleveland, Buffalo and Toronto. The car was given a rousing sendoff when it left the headquarters of the Wolverine club at the Griswold house. It was driven by John G. Utz and carried Chairman Harry R. Robinson of the club's committee on runs and tours, as well as a stenographer and

photographer. The car will travel the route picked out for the tour. Its crew will chart all the course and compile material for a road book, to be used by the tourists. Chairman Robinson also will complete all the hotel and garage arrangements at the locations selected for noon and night controls.

At Cleveland the work of pathfinding will be turned over to C. W. Hatch of the Cleveland Automobile Club. Representatives of the other affiliating clubs will perform their parts of the work. The car itself will make the entire trip, however. The pathfinding vehicle is a new Abbott-Detroit.

Interest in the run continues and the field of pledged entries promises to sur-

pass even the most sanguine expectations. The idea of a non-competitive run in conditions adaptable to a family outing, seems to appeal to the Detroit motorists, as well as to those of Cleveland and Buffalo.

## LAYING OUT ST. LOUIS TOUR ROUTES

St. Louis, Mo., May 22—The pathfinder trip for the St. Louis Automobile Club's annual owners' reliability run was made last week by four cars, which covered the edges of St. Louis county and Jefferson county in an all-day run. The event is to take place June 24, and is open to any amateur who is the owner of a car. Either the owner or a member of his immediate family must drive. Six controls were established by the pathfinders on the route.



OFFICIAL ROUTE OF 1911 GLIDDEN TOUR

# Change in Trade Tactics in Detroit

Close Corporations No Longer the Rule Among Michigan Car Manufacturers—Now Most of Them Put Their Stock on Open Market—Increase in Number of Truck Makers

**D**ETROIT, Mich., May 22—A marked change has come over the financial conditions governing the ownership of the local motor car factories. The change is a matter of the past year and marks the passing from the scene of the factory controlled by a few. Close corporations are now the exception rather than the rule in the local manufacturing field. This statement applies not only to the factories producing motor cars, but to those in which parts are manufactured as well. Now it is possible to secure stock in almost any Detroit motor car factory.

The first of the concerns making this a policy was General Motors. A large quantity of this stock was absorbed by Detroit and Michigan investors. The same is true with the cases of United Motors and the recently formed Studebaker corporation. During the past 6 months stock of nearly all the Detroit factories has been available on the market, the one universal exception being the Ford Motor Car Co., which is still controlled by Henry Ford and his immediate associates, with very little outside capital invested.

## Capital Stock Increased

Increases in capital stock have been made by practically all the big Detroit companies, and this stock has been placed upon the market. One of the latest announcements of this character is that of the Grabowsky Power Wagon Co., which has increased its capital stock from \$500,000 to \$1,000,000 and is advertising the shares for sale. Detroiters are familiar with the many large fortunes made locally in the field of motor car manufacture, and many investors have patronized the local firms with purchases of stock.

Incorporation of new manufacturing firms is by no means on the wholesale basis

of former years. Most of the 1911 crop of new companies, it is noteworthy, are specializing in the manufacture of motor trucks. There undoubtedly will be many of these on the market next year. The latest locally is the Commerce Motor Car Co., of which Walter Parker is president, W. T. McGraw, vice-president and general manager, and Harry Bennett, treasurer. This firm will manufacture a 20-horsepower four-cylinder truck of the light delivery type and at a popular price. The Abbott Motor Sales Co. has secured the distributing rights for the state of Michigan. The plant is located at Solway and Fort streets, and is 260 by 60 feet in size. The first season's output will be 500 cars, following out a model which has been in successful operation on Detroit streets for several months.

## Big Order of Tires

General Manager Gilbert, of the United Tire Co., was in Detroit during the past week and closed a contract for 135,000 tires for the E-M-F Co. branch of the Studebaker corporation. From another source it is learned that this company has also given an order for 75,000 demountable rims, the Standard Welding Co. getting this contract. The E-M-F Co. is expected to announce soon that United tires and demountable rims will be considered regular equipment on its 1912 cars. In former years the E-M-F Co. has been supplying Morgan & Wright tires on clincher rims as its standard.

The Pontiac factories of the Flanders Mfg. Co. have started work on the production of the new Flanders electrics and Pontiac motor cycles. General Manager Brownson states that 3,000 of the electrics and 10,000 of the motor cycles will be put out during the next 12 months. Pontiac

is building up tremendously in the neighborhood of the Flanders plants, which will soon be employing their full quota of 3,000 men.

The new Packard six is being given a strenuous test by President Harry Joy, Chief Engineer Russell Huff and a crew. The party made one long trip through Cincinnati and St. Louis early in the spring. At present Mr. Joy and his crew are in the far west, the last heard from them being from a point in Wyoming, in the Jackson's Hole region. The party is roughing it and is carrying a complete camping outfit.

## Lackadaisical Over Glidden

There is much less interest locally in the Glidden than in the years in which that event traversed western territory. So far as known but two of the Detroit group of manufacturers will be represented. The Warren Motor Car Co. and the Oakland Co. of Pontiac are out with announcements that they will enter cars. None of the others is yet on record.

During the argument attending the drafting of a new traffic law for Detroit, it is a noticeable fact that local manufacturers and retailers have been increasingly careful in the directions given their employees. Several of the companies have posted traffic regulations in their garages and all have endeavored to impress their drivers with the need of careful attention to the present ordinance. There have been no fatal accidents during the past week, and this is taken by motorists as a favorable indication of the action which the council will take at its next meeting when the ordinance comes up for a final vote. At present the motorists seem to have made considerable headway with the aldermen. It is believed that the proposed extension of the so-called business district to everything within the 4-mile circle will fail of passage, as well as that clause of the ordinance making it obligatory for motorists to bring their cars to a full stop before passing street cars taking on or discharging passengers.

## Progress of Stunt Cars

Detroit's three stunt cars were all located during the past 3 days. The Warren-Detroit Wolverine crew bobbed up at Portland, Ore., and its members were arrested for advertising on the street without a license. The Abbott-Detroit Bulldog is in northern Mexico, being last spoken at Lampazos, where it was finding the going very heavy. It crossed the border at Laredo and is following the route of the Under Three Flags Flanders 20, which made the trip last summer. This car is after a mileage of 100,000 and now has accumulated 27,160. The world-touring Hupmobile finished its tour of Japan May 15, having penetrated many parts of that island where never before was a motor car seen. Mr. Touhup, who is in charge, was guided through the Mikado's realm by Mr. Oguri, a Japanese who has toured the country quite thoroughly in former years.



PACKARD OFFICIALS CAMPING OUT IN FAR WEST



A new firm of retailers has made its debut on Woodward avenue. J. Neil Patterson, formerly with the Packard and Lozier sales forces, and R. A. Whitehead, formerly with the sales department of the Oakland and the Detroit electric, comprise the partnership, which goes under the name of the Motor Wagon Sales Co. The firm will handle the new Detroit motor wagon, which is being built at Piquette avenue and St. Antoine streets. Detroit and Wayne county is the territory assigned the company.

John P. Schneider, the pioneer Detroit retailer of motor cars, has taken on the agency for the Marion cars.

#### BOARD OF TRADE OFFICERS CHOSEN

New York, May 20—A meeting of the directors of the Automobile Board of Trade, which was recently incorporated, and which will comprise the members of the Association of Licensed Automobile Manufacturers and other prominent makers of motor cars, was held yesterday at 7 East Forty-second street, New York city, at which many of the preliminary details of the organization were completed.

Colonel Charles Clifton was elected president; Charles C. Hanch, vice-president; Colonel George Pope, treasurer, and Benjamin Briscoe, secretary. H. A. Bonnell, who was appointed acting manager of the A. L. A. M. upon the resignation of Alfred Reeves, will be the acting manager of the new organization. The following members were elected as charter members:

American Locomotive Co., American Motor Car Co., Apperson Brothers Auto Co., Autocar Co., Bartholomew Co., Brush Runabout Co., Buckeye Mfg. Co., Buick Motor Co., Cadillac Motor Car Co., Chalmers Motor Co., Columbia Motor Car Co., Corbin Motor Vehicle Corporation, Dayton Motor Car Co., Elmore Mfg. Co., Everitt-Metzger-Flanders Co., H. H. Franklin Mfg. Co., Haynes Automobile Co., Hudson Motor Car Co., Jackson Automobile Co., Knox Automobile Co., Locomobile Co. of America, Lozier Motor Co., Matheson Motor Co., Maxwell-Briscoe Motor Co., Mercer Automobile Co., Metzger Motor Car Co., Mitchell-Lewis Motor Co., Moline Automobile Co., Moon Motor Car Co., National Motor Vehicle Co., Nordyke & Marmon Co., Oakland Motor Car Co., Olds Motor Works, Packard Motor Car Co., Peerless Motor Car Co., Pierce-Arrow Motor Car Co., Pope Mfg. Co., Premier Motor Mfg. Co., Pullman Motor Car Co., Reo Motor Car Co., Royal Tourist Car Co., Alden-Sampson Mfg. Co., Selden Motor Vehicle Co., F. B. Stearns Co., Stevens-Duryea Co., Studebaker Automobile Co., E. R. Thomas Motor Car Co., Waltham Mfg. Co., Willys-Overland Co., Winton Motor Carriage Co.

#### BURMAN IN MIDNIGHT DRIVE

New York, May 22—Bob Burman added another unique record to his collection by his daring driving on the Long Island motor parkway at midnight Thursday. Burman, at the wheel of a National speedster, covered ½ mile in :22½, at a rate of 80 miles an hour. Burman depended entirely for illumination on the new Remy magneto light, which cast so powerful a ray that the clockers ½ mile away were able to read their watches by it.

In all, Burman made three trials, and each was clocked by S. M. Butler, A. R. Pardington, Charles E. Forsdick and Harry Knepper. With Burman rode H. G. Deupree. F. E. Moskovics officiated as starter of the midnight event.

## Reports on South American Outlook

John L. Poole, Representing Lozier, Finds Yankee Makers Have Been Misled by Highly Colored Stories as to Possibilities for Sale of Cars—European Goods Are Popular in Foreign Climes

DETROIT, Mich., May 22—The experiences of John L. Poole, special Lozier representative, who has been visiting the South American countries since last November, in the interests of the Lozier company, gives an insight into the conditions of the trade in the Latin-American countries of exceptional interest.

Mr. Poole left New York last November and reached New York on his return a few days ago, and is now at the headquarters of the company in Detroit. He visited Brazil, Argentine Republic and Uruguay, which are the principal countries of South America in which the motor market is found. He states that while these countries have great natural resources, American exporters in this country have been misled by highly colored reports of the possibilities for the sale of American goods.

The American manufacturer is placed at a great disadvantage with his European rivals by reason of the fact that the great bulk of export trade is carried on with the European countries, owing to the superior transportation facilities between European and South American ports. The steamer lines between the American ports and South America are inferior in every way to the lines operating between South American countries and Europe, and the wealthy and traveled class are frequent visitors to London, Paris and Berlin, and a comparatively small number ever visit the United States. Naturally this tends to build up trade between the European and South American countries.

#### European Cars Popular

In the case of the motor trade, Mr. Poole found that the purchase of high-class cars was confined almost entirely to French, German and Italian cars. The

American car was not taken seriously, for the only cars which had met with many sales were low-priced machines, and these had been so unsatisfactory in comparison with the better grade of foreign cars that in the absence of high-class American cars all cars from the United States were placed in a class as unreliable. Even the best grade of foreign cars, it is found, are purchased in Paris by the wealthy visitor from Rio or Buenos Aires on his annual trip to those cities, and the few high-priced cars sold in those cities were sold on long time, even the wealthy planters demanding from 4 to 6 months in which to make payment.

#### American Agencies Placed

After several months of educational work Mr. Poole was successful in establishing agencies with responsible concerns in all of the countries visited, but in his opinion a great deal of missionary work must be done by builders of high-grade American cars to demonstrate the fact that American cars are now being built which are superior to the European makes, and even then the building up of high grade business, will be slow and tedious. The close business and personal relations existing between business houses of South America and Europe renders the American invasion difficult, especially as the South American dealer is not accustomed to the American way of doing business on a cash basis. Business conditions, especially in Buenos Aires, have been unusually bad the past 6 months, owing to crop failures. The corn crop has been almost a total loss, and only 50 per cent of the normal yield of wheat has been obtained, owing to the great prolonged droughts. Sheep and cattle have died by the thousands for lack of food and water.



BURMAN IN NATIONAL WHICH MADE MIDNIGHT RECORD

# Nebraska Starts Good Road Movement

Plans Made for Highways Across State, One Running From Omaha to North Platte, with Idea of Eventually Continuing to Julesburg, Colo., Then On Through Cheyenne to Pacific Coast

OMAHA, Neb., May 20—Two plans for highways across the state of Nebraska have been promulgated this month, and the indications are that both routes will be established, with good roads throughout, before the end of the year. Until now, there has been no good highway across Nebraska.

Last Tuesday, a convention of delegates from towns all along a South-Platte route from Omaha to the Colorado line on the way to Denver, was held at Holdrege, a permanent organization effected and steps taken to push the improvement of the highway at once.

The Omaha World-Herald has announced that it has arranged for big cash prizes for the township and county having the best stretch of road, on a North-Platte route, from Omaha to North Platte. Eventually this route will run to Julesburg, Colo., and from there in time it is expected will go on to Cheyenne and the Pacific coast. One county on this route, with 40 miles of road, has its organization perfected, and has already done considerable work, through the coöperation of business men and farmers.

## Convention Held at Holdrege

As Nebraska good roads enthusiasts failed to secure any law at the last session of the legislature to provide for state assistance or supervision of road building, or for a state highway, various organizations have determined to start these highways themselves.

A committee of men from Oxford, Minden and Holdrege, Neb., arranged for the convention of delegates from the South Platte towns, which was held at Holdrege.

Thirty towns and seventeen counties were represented by fifty-three official delegates. In addition there were some 200 other good roads boosters, who went to the convention to testify to their interest in the movement. Thirty-seven motor cars filled with boosters went from Kearney county alone. It was decided to call the organization the Omaha and Denver Good Roads Association, and the road will be known as the Omaha and Denver highway.

There was some contest as to the route to be followed, but it was decided to follow the Burlington line from Imperial, McCook, Holdrege, Hastings, Friend, Dorchester, into Lincoln, and thence through Ashland to Omaha.

A constitution was adopted and officers elected, including a vice-president from each county through which the road will pass. These officers constitute an executive committee, and will transact business during the intervals between the sessions

of the association. A membership fee of \$1 was fixed.

C. P. Allen, chairman of the Colorado State highway commission, was present at the convention, delivering an address, and promised that the commission would see to it that the Colorado road connected with the Nebraska road.

## Officials Are Selected

In addition to the county vice-presidents, the officers elected were: President, J. E. Davis, Sutton, Fillmore county; secretary, G. E. Parisoe, Minden, Kearney county; treasurer, M. A. Taylor, Hastings, Adams county. The Hastings boosters succeeded in landing the next convention for that city. Active work will be started at once.

The North Platte route from Omaha to Julesburg, Colo., is the one that has been suggested as part of the national highway, and was followed by the Glidden tourists in 1909.

For the past 2 years the World-Herald has offered trophies for endurance runs through the state which followed part of this route. This year the paper is arranging for large cash prizes for the best strip of road from Omaha to North Platte, is working up an organization to get behind the movement, and will offer trophies for an endurance run over this route in September. Judges will go out over the road at the time of the run and decide to what township and county the prizes are to be awarded.

## Omaha-North Platte Route

This route and the mileage, according to the Glidden tour figures, are as follows:

Omaha .....	Grand Island...146
Elkhorn .....	Alda .....
Waterloo .....	Wood River...164
Valley .....	Shelton .....
Fremont .....	Gibbon .....
Ames .....	Buda .....
North Bend .....	Kearney .....
Rogers .....	Odessa .....
Schuyler .....	Elm Creek .....
Benton .....	Overton .....
Columbus .....	Lexington .....
Duncan .....	Cozad .....
Silver Creek .....	Willow Island...255.9
Havens .....	Gothenburg ...263.7
Clarks .....	Bignell .....
Central City...122.9	North Platte...312.2
Chapman .....	

The endurance run in September will be a 4-day contest.

## Many Conditions Prevail

Different conditions have to be met to bring about good state highways over these two routes. The South Platte route is through hilly country, but the roads are mostly clay. On the North Platte route the only hills are within a few miles of Omaha. The rest of the way the road follows the Union Pacific up the Platte valley, on the north side of the river, and there is scarcely a hill the whole distance. However, on this route there are some stretches of sandy road, and this will have to be overcome by dumping dirt on them.

Merrick county, on this route, while one of the smallest counties in the state, has been working for a year to develop the 40 miles of this highway which lies in that county.

In the summer of 1909 a government good roads expert was secured from Washington and, under his direction, 2 miles of model road was built at a cost of \$600 per mile. At the time of the building of this road arrangements were made to have all of the township officers in the county present to learn how good roads could be built through sand.

Following the completion of these roads the interest in a more extended movement was so great that in February, 1911, an association was formed to build this 40 miles of road from the east to the west end of the county. Central City business men donated \$800 in 1 day to get the movement started.

## Farmers Are Helping

The farmers along the route nearly all have pledged 2 days' work each, and six townships through which the road runs are throwing up the necessary grades. These will then be topped with a dressing of clay or gumbo, the farmers bringing this to the road.

Already much of this work has been done in the neighborhood of Central City. May 22 and 23 were fixed as the days for the donation work on finishing the road, but because of the activity and interest of the farmers much of it was done before those days. It is the purpose of the organization to maintain this road by means of the King drag, for 1 year after completion, to more thoroughly demonstrate the necessity and economy of keeping a road in condition after it has once been built. Permanent cement culverts are to replace the wooden bridges on the road, these being provided by the county from the inheritance tax fund.

## WILLYS ADDING TO PLANT

Toledo, O., May 20—Announcement has been made by the Willys-Overland Automobile Co., of Toledo, of the letting of a contract for the erection of a mammoth new addition to its already large factory buildings here. W. E. Wood, of Detroit, has been awarded the work, which will cost in the neighborhood of \$300,000. The new building will be five stories high, 300 feet wide and 400 feet long, constructed of reinforced concrete and made as near fireproof as possible. Work will be started on the improvement at once and the entire structure will be ready for occupancy by the first of November. It will be the largest individual building in the group of great structures which the company has erected in this city, and in fact will be nearly two-thirds as large as all the others combined, containing 6,000 square feet of floor space. Employment will be provided for 2,000 additional men when the addition is in working order.

J. N. Willys, president of the company,



this week said: "We are building this structure to take care of the Overland business which now goes to Indianapolis. Everything connected with the manufacture of the Overland is to be done in Toledo in the future. All the bodies for the cars will be made in the new building, leaving the remainder of the factory structures for the metal parts. It is our intention to make nothing but Marion cars in Indianapolis. We had three factories there. One of them we sold and the other two are to be consolidated into a big plant for the manufacture of Marion machines.

"The Overland plant here will have a capacity of 110 cars a day when the new building is completed. We will be able to turn out 30,000 cars annually from Toledo if the demand warrants it. We will build only what we can sell, but it seems now as though we will have a demand for at least 25,000 cars next year. For the last 2 years we have been paying much attention to our foreign trade and have been designing cars to please the trade in different countries. As a result we have sold many machines in Australia, Tasmania and in England."

#### POPE SELLS MIDLAND STOCK

Moline, Ill., May 23—Charles H. Pope, president and general manager of the Midland Motor Co., has resigned from the management of the company, selling his stock to his associates, E. H. Guyer, of Rock Island, vice-president of the company, being one of the principal buyers. Mr. Pope began his business career 40 years ago and was one of the founders of East Moline, now a thriving factory town whose rapid growth in 10 years has shown the wisdom of the men who selected the location. He became interested in the manufacture of motor cars 8 years ago, when, together with associates, he bought out the stock of the Deere & Clark Motor Co. and formed the Midland Motor Co. The new president and general manager of the Midland company has not yet been selected.

#### TALKS ROADS TO TAFT

Washington, D. C., May 23—"I want to see Sixteenth street in Washington extended from the Pacific to the Atlantic," said Thomas G. Norris, president of the Arizona Good Roads Association, who called on President Taft today in company with Delegate Cameron, of Arizona. Mr. Norris is urging a transcontinental highway, and he said, after his conference, that Mr. Taft also is interested in the project.

#### HUMPHREY JOINS LION'S FORCES

Detroit, Mich., May 22—S. H. Humphrey, factory manager of the Brush Runabout Co., severs his relations with the company on June 15, to take up the work of general manager of the Lion Motor Car Co. of Adrian, Mich. In addition to the general management of the Lion company's entire business Mr. Humphrey has been elected to a seat on the governing board.

## Ford Winner of Washington Sociability

Only Three Points Marked Against Model T, Driven by H. G. Machen in Four-leaf Clover Run, Imposed for Stalled Motor—Regal, Warren, Velie and Stoddard Class Victors

WASHINGTON, D. C., May 20—The four-leaf clover sociability run of the Automobile Club of Washington, which was in reality a reliability contest under grade 3 rules of the A. A. A., was won by a model T Ford, driven by H. G. Machen. It had 3 points marked against it for a stalled motor and won the sweepstakes trophy and the trophy in division 1A.

The prize in division 2A went to a Regal 20 roadster, driven by E. H. Clarke, Bruce Emerson and James Orme, who alternated during the 4-day run. The Regal's score was 126 points, of which 3 were for filling the radiator out of control, 53 for the footbrake test and 70 for the emergency brake test. Division 3A went to a Warren-Detroit, driven by I. C. Barber, its penalties amounting to 55. Of these 1 point was for tightening a grease cup, 1 point for putting gasoline on brakes, 3 points for filling radiator, 2 points for taking off right rear mud guard, and 48 points for work on tires in noon control. The tires were put on the machine by tire people without order from the Warren-Detroit driver, but Referee West held that the driver should have watched his car. The Velie, driven by C. E. Miller, carried off the prize in division 4A, having 88 points registered against it. Two points were given for putting gasoline on brakes; 11 points for lateness at control; 2 points for repairing brake rod; 19 points on the emergency brake test, and 54 on the foot brake test.

#### Stoddard Has Walkover

The Stoddard-Dayton was the only entry in division 5A, and had a walkover. It sustained penalties amounting to 205 points. A leaky radiator the second day necessitated filling the radiator eleven times, for which 33 points were assessed. This caused the car to be late in the night control, thereby losing 59 points. Checking out the third day Clarence Barnard, the driver, replaced his radiator, and was given 58 points for the operation. On the last day he again had to fill the radiator, losing 3 points, and 8 points for tightening a fender. In the brake test he lost 10 points on the foot brake and 34 points on the emergency brake.

A Cole 30, driven by Cleveland Campbell, sustained penalties amounting to 243 points, of which 36 were for being late at controls; 2 points for stalled motor; 4 points for work on oiler; 24 points work replacing spring bolt; 116 points on foot brake test and 61 points of emergency brake test.

Hard luck was the portion of Harry Cunningham, who drove a Marion roadster.

On the third day, coming into Hagerstown he was struck by the Matheson pilot car as the latter was leaving for Washington. The force of the collision broke a rear wheel and damaged the car otherwise. Work on the car caused a penalty of 1,320 points, resulting in 524 points for being late in controls. In addition the car lost 12 points for taking on fuel, oil and water, 1 point for tightening hub cap, and 14 points on the emergency brake test.

#### Troubles of the Cars

Three hundred and two points were marked up against Stanley Mortimer's model 21 Buick. Of these 6 were for filling radiator, 8 for repairing fan belt, 46 for lateness at controls, 4 for work on magneto, 162 for replacing spring, 5 for a missing cylinder and 71 on the foot brake test.

A four-cylinder Reo, driven by Frank Stewart, suffered penalties amounting to 163 points. These consisted of 12 points for taking on oil, fuel and water; 61 for being late at controls; 2 for wiring body to frame; 44 on emergency and 44 on foot brake tests. An Apperson, Krit and Hudson were withdrawn.

Considering the many obstacles encountered in running the contest, it was highly successful. The third day's run to Hagerstown, and the last day's run to Leonardtown, Md., were particularly enjoyable. The latter town is in southern Maryland and it was the first time a motor tour had ever been through that section. The farmers thoughtfully kept their horses off the road on the day the tour came through and this undoubtedly prevented many accidents.

#### INCREASED PRODUCTION ORDERED

Detroit, Mich., May 23—An important conference of the heads of the United States Motors Co. took place at the firm's Detroit headquarters Monday, at which it was decided to speed up the production at the Detroit plants during the coming season to a total of 15,000 runabouts, touring cars and trucks. Announcement to this effect was authorized by President Briscoe. The United States Motors Co. Detroit plants have had an output valued at \$7,000,000 this season. The increase will come near to doubling the total for the season of 1912.

Among those present at the conference were President Benjamin Briscoe, Vice-Presidents Frank Briscoe and J. W. Wellington, Sales Manager Alfred Reeves, O. J. Mulford, of the Gray Motor Co., C. S. Briggs, of the Brush Runabout Co., and Morris Grabowsky and P. H. Reed, of the Alden Sampson Mfg. Co.



# MEXICO

## its Scenes and People

by  
HARRY H. DUNN



TO the motorist of the world, and more especially to the lovers of the car in the United States, there has been opened in the past few years a vast field which rivals in interest the plains of Egypt, vies in roads with the thoroughfares that skirt the shores of the Mediterranean and excels in climate even the sunny vales of France or Spain.

This is Mexico, where one may coast from an altitude of 8,010 feet at Zacatecas down to sea level at Vera Cruz or Tampico, on the Gulf of Mexico, or to Mazatlan or Manzanillo, on the western shore of the great republic of the south. Incidentally, one may follow the old stone roads laid by the Toltecs and the Aztecs, and even the shadowy Olmecs for their runners a thousand years ago. The motorist may also girdle Lake Chapala, Mexico's inland sea, visit the old churches that dot this land from end to end, fritter away an hour in the shadow of the great pyramids of the dead races of America's Egypt, and dine at the most picturesque of lunch houses or buy all things edible from wandering, sandal-footed peddlers.

All the while over one's head shines the sun of Italy, the ball of fire which saw the rise of Montezuma's empire and its sinking into dust at the fiery words of the great *conquistadore*, Hernan Cortez. As in other countries, one finds here good roads and bad, accommodating people and grouchy dwellers on the soil; pleasant accommodations and inferior lodgings; but by and large—and the author has traveled in every state and territory in the republic—travel here is as pleasant as it is in other more advanced countries, and infinitely more interesting.

In every city of size, which is to say above 25,000 inhabitants, motor car supplies can be obtained, and in the larger cities such as the capital, Guadalajara, Puebla, Monterrey, Zacatecas, Durango and all the ports, one can get everything a touring trip demands, even to the practical rebuilding of the car. Some of the drives through the hill country of Mexico all but put a car in a condition requiring rebuilding, as the author has had experience to prove.

The small runabout is neither popular nor useful in the states of Mexico outside of the Federal District, in which is located



1



2



3



4

1—STREET SCENE IN OUTLYING TOWN IN MEXICO

2—FORDING RIVER. NOTE THE USUAL HARD RIVER BED.

3—TOURING IN THE FAMOUS ANAHUAC VALLEY

4—A GRADED AND ASPHALT ROAD IN ONE OF THE OUTLYING STATES. A FAIR EXAMPLE OF WHAT ROADS WILL BE A FEW YEARS HENCE



1



2



3



4

1—THROUGH AN AVENUE LINED WITH ORGAN PIPE CACTUS

2—FAMOUS ARCH, AND ONE OF MEXICO'S BEST ROADS

3—PETRIFIED STREAM OF LAVA, NOW A RIVER BED

4—ON THE EDGE OF THE PEDREGAL RIVER, A LAVA BED, THOUSANDS OF ACRES IN EXTENT. IT IS THE GREATEST Foe TO TIRES IN MEXICO







LOOSE BOULDERS ON GOOD ROADS

ACROSS THE ROADLESS TRACKS

Mexico city. The roads are hard on cars of any make, but the 30 to 50-horsepower touring cars are the most successful in the republic. One American make has gained a strong hold in some of the outlying districts, but all in all the majority of the cars used are of Italian or French make, these being largely used among mining camps and on the big haciendas where motor cars have been used.

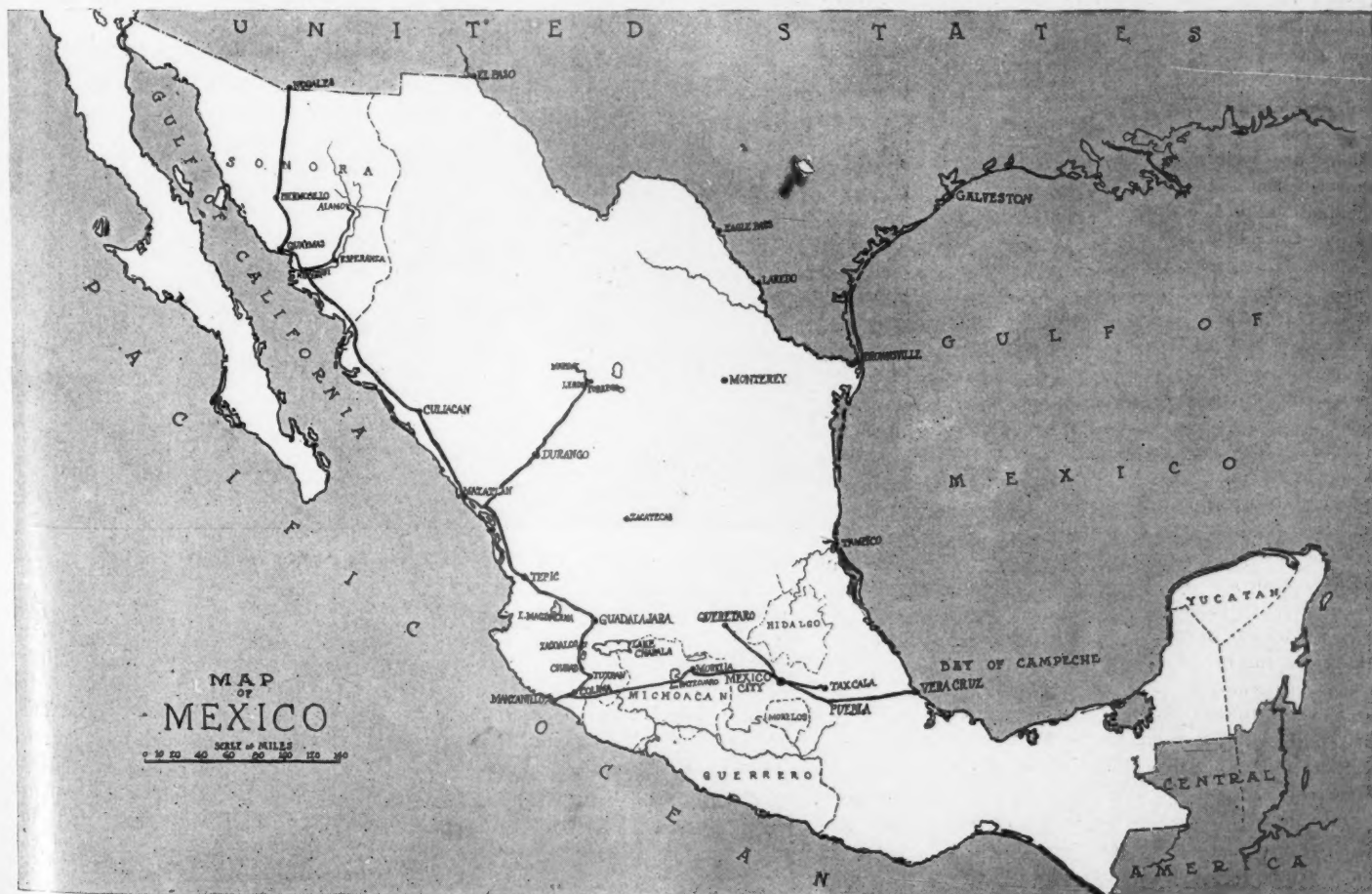
With the single exception of Yucatan and Quintana Roo, its dependent territory, there is no section of Mexico where the motorist may not travel with perfect safety, or will he be refused food at any settlement or ranch house where he seeks to purchase it in a gentlemanly manner. The natives, however, will steal anything movable in the out-of-the-way districts, so

that a sharp watch must be kept on lamps, cranks, oil cups—in fact, all bright brass or copper fixtures which can be unscrewed or otherwise loosened. These find a ready sale in the pawnshops and thieves' markets, and once lost can seldom be traced. Time was when Guerrero, one of the most interesting states of Mexico, was infested with bandits, but the energetic police régime of President Diaz has about cleaned these fellows out, so that Yucatan and Quintana Roo are the only places where danger may be apprehended, and that only from the Maya Indians of the remote districts. These people never will be subdued until they are killed, and from their present ability to stand off the Mexican soldiery there is little immediate danger of their extinction. Few motorists, how-

ever, will get as far down into Mexico as the north-pointing peninsula of Yucatan, so that consideration of conditions there can be eliminated from factors of a proposed trip to Mexico.

When you come into the republic, always bond your machine; do not pay duty on it. You thereby save a large sum of money, and can have the bond extended from time to time in case you desire to stay in the republic longer than at first intended.

Most tourists from the United States and many from Europe will wish to come into Mexico from the northern border. The greater part of the eastern half of the northern states of Mexico is desert. The traveler by motor car therefore will find entrance on the west coast much more



MAP OF MEXICO, SHOWING POINTS REFERRED TO IN STORY



THE PLAZA, A FAMOUS SPOT IN MEXICAN CITIES

CLEARING STONES OFF THE ROAD IN OUTDISTRICTS

interesting than from El Paso, Eagle Pass, Laredo or Brownsville. Coming in through Nogales, Ariz., and Nogales, Sonora, one follows a good road, almost paralleling the line of the Southern Pacific in Mexico, to Hermosillo, 150 odd miles to the south. Hermosillo is the capital of Sonora and one of the prettiest cities in Mexico. It is the center of the great wheat and cattle belt of northern Mexico, and the smoke of many flour mills is swallowed up in its blue skies.

The Yaqui troubles, which were the bane of Sonora until General Luis E. Torres became governor, now, fortunately, are things of the past, and one can travel through the mountains in perfect safety. The coming copper camp of the world is located on the Yaqui river, amid great volcanic cliffs, the mighty river of Mexico's west coast roaring around their bases. There are vast coal veins here, too, and most of the roads are in good condition. The soil is hard, elastic and altogether excellent for motoring.

From Hermosillo one can drive some 90 miles further south and west to the Gulf of California at Guaymas, where is a city of about 9,000 inhabitants, hotter than an oven in summer but blessed with the most delightful climate in Mexico from September to March, and even on into April. There is an excellent but undeveloped harbor which some day will be one of the great ports of the New World. In Guaymas are old churches and quaint customs, despite the proximity of the city to the border, and one of the famous Sunday evening plaza parades of Mexico. All the beauty, wealth and chivalry of Guaymas gather on the broad concrete walks around the band stand in the central park to promenade to the music of a fine band. One finds similar promenades throughout Mexico, but especially in the cities of the *Tierra Caliente*, or hot country.

On Sunday afternoons there is a parade of carriages and motors around the same plaza while the band plays, and in this may be seen some of the finest horses and best cars in Mexico. There are few of the

latter in Guaymas, because the cars for sale are not exhibited to prospective buyers, but are kept in warehouses waiting for purchasers to come along and ask for them. A hustling American salesman, representing a comfortable road car of 40-50-horsepower, with capacity of six or seven persons, could do a good business from Nogales all the way to Mazatlan.

If the tourist be a sportsman he can find excellent fishing and duck shooting in the Gulf of California and in the marshes above Guaymas. There are also wild hogs and deer within a few hours' ride by mule or in one of the country wagons.

From Guaymas the next trip is down the

can penetrate the mining camps of Alamos, San Xavier and many others, to which a railroad is now building from the main line of the Southern Pacific in Mexico at Corral. In the model town of Esperanza, on the irrigated tract in the Yaqui Valley, the motorist can obtain gasoline and other oils, as well as all necessary food supplies for the run of nearly 250 miles to Culiacan, a white-walled, tile-roofed city of 22,000 inhabitants, the capital and industrial center of Sinaloa.

On the way down the tourist passes through the great jungle where the road is merely a pool-dotted path between green walls of trees, vines and huge ferns,



CLIMBING GRADE NEAR CUESTA DE TOROS, BETWEEN OCOTTAN AND MUCIO MARTIN

coast, past the Yaqui Valley, across the Yaqui and Mayo and other rivers and into Mazatlan on the Pacific Coast. The Yaqui River Valley has fine roads and the stream itself is beautiful. The writer has driven in a 40-horsepower car throughout the length and breadth of the million-acre, gently-sloping plain, which is now being developed under a gigantic irrigation scheme that diverts about one-fourth of the water of the Yaqui river.

Up and down the Yaqui there is good shooting. By following the stream one

spotted here and there with the vivid crimson of exotic flowers. Deer leap from his path, flocks of green, red and yellow parrots fly screaming overhead, only to perch on a near-by tree and chatter at the intruder. He may even arouse a jaguar from beside the road, or see a little puma disappearing into the tangle. Herds of half-wild cattle are everywhere, and to follow any animal into the jungle is to loose one's self possibly forever.

Most of the rivers have to be forded, but in the autumn, which is the best time



to make the trip, they are shallow, seldom more than 18 inches in depth, and have hard bottoms if one sticks closely to the regular crossings. Never anywhere in the low country of Mexico leave the beaten road when driving a car. Quicksands are shifting constantly in all the rivers, and there are covered springs everywhere in the jungle and frequently on the open llanos or plains. Once mired in these, you may have to walk miles to the nearest *hacienda* to get a team of oxen or mules to pull the car to solid ground again.

From the Yaqui river to Mazatlan is the

garden calendar of Sonora and Sinaloa.

Throughout this part of the country one meets motor cars loaded down with ranchers and their families, some Americans, some Germans, many Mexicans, who have acquired wealth by sticking to the soil, and it is little trouble to get repair materials, oils, etc., from the great ranch houses which dot the banks of the streams and the great valleys between the ranges of hills. It is well to fraternize with motorists you meet, for they travel long distances in this new country, and the man you meet on the road in Sonora may

round about. There are excellent machine shops here, and one can obtain all manner of supplies both for the machine and for the man. Hotels are poor all down the west coast. The best method of living is to take a room at the best hotel in town and then eat where you choose. Native cooking is the best, both on the grounds of good health and good food. All the hotels put up an imitation foreign bill of fare, which is a mixture of Italian, French, German, English and American cooking, with a Chinese chef to prepare it. The result can be judged. In Mazatlan the writer found the best eating in the open market, where *enchiladas*, *tomalas*, *pollo*, *tortillas*, *frijoles* and various drinks, all native, can be had for a few cents. The chocolate, made fresh and steaming hot in the market of Mazatlan, is the best in the world, and I have been unable to procure as good a drink in Mexico city, though it has 500,000 people and fifty times as many restaurants, as the small port of Sinaloa.

Interesting side trips through the hills from Mazatlan are: To El Rosario, 40 miles; to Durango, capital of the state of the same name, 125 to 150 miles; on from Durango, if the driver desires to see the mining country of the republic, to Torreon, 150 miles, and the nearby towns of Lardo, Gomez Palacio and Mapimi, all old and interesting.

From Mazatlan, I understand, there is a fairly good wagon road through the hills to Tepic, capital of the Territory of Tepic, 160 miles southeast of the port. Tepic is an ancient city, to which the Southern Pacific in Mexico is building, but which is yet in its pristine state of primeval life. Here one sees some of the wildest, though not the most savage, of the Indian tribes of Mexico, many of them speaking no Spanish, but still clinging to the ancient Nahuatl tongue which the Aztecs brought to Mexico in their southward migration, and which was the language of Montezuma's court.

Into Guadalupe from Tepic is 125 miles. All these distances are given in an air line, and of course are increased by



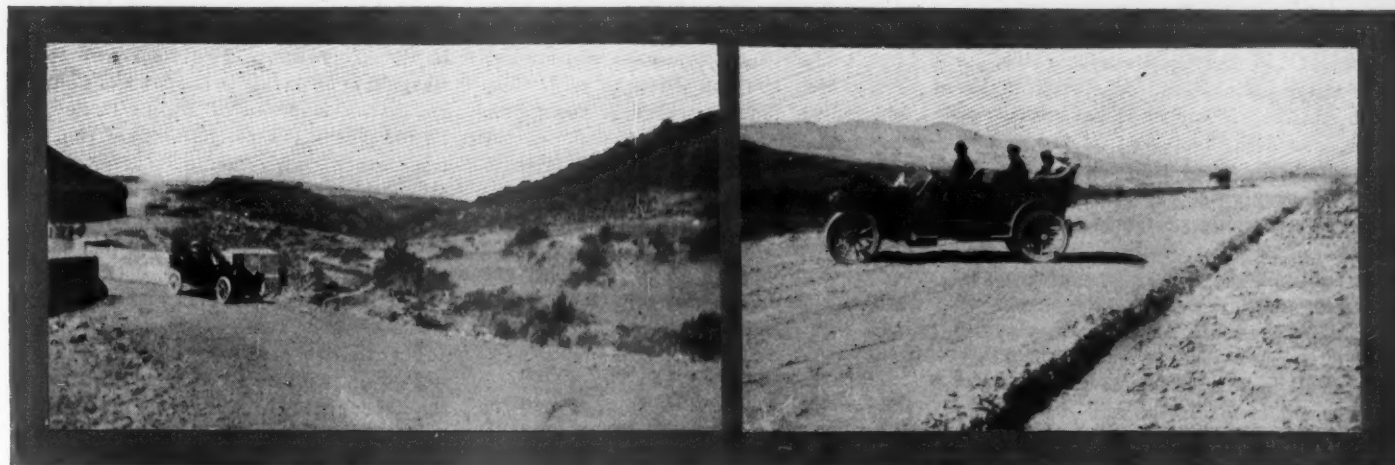
HOTEL RIHEAR CASTELLANOS ON LAKE CHAPALA, FAMOUS SPOT

great, undeveloped agricultural land of Mexico, where the earth can be bought for a few cents an acre, cleared of the jungle for about \$3, gold, an acre, and made to produce crops of wonderful variety, richness and value. Hundreds of Americans are coming into this part of Mexico every year, buying lands from the ranch owners and settling down to raise fruits and vegetables for shipment to New Orleans, Los Angeles, San Francisco and even Chicago, at a time when the eastern half of the United States is snowbound. Tomatoes in December and January, watermelons in February and other vegetables all the year around, is the usual

be the means of helping you 200 miles further on down in Sinaloa or even over in Tepic.

Again, the hospitality of every country dweller in Mexico is complete. If you treat him as one gentleman treats another, his house is yours as long as you want to stay; but do not stay too long. He will do anything he can for you until the novelty of your presence wears off, and it is always best to be on your way just a day or two before that time arrives.

Mazatlan is a thriving port of 18,000 or 20,000 people, hot in summer but with a fine climate in winter, and with good roads radiating out into the country



ROAD IMPROVEMENTS ARE GAINING EACH YEAR

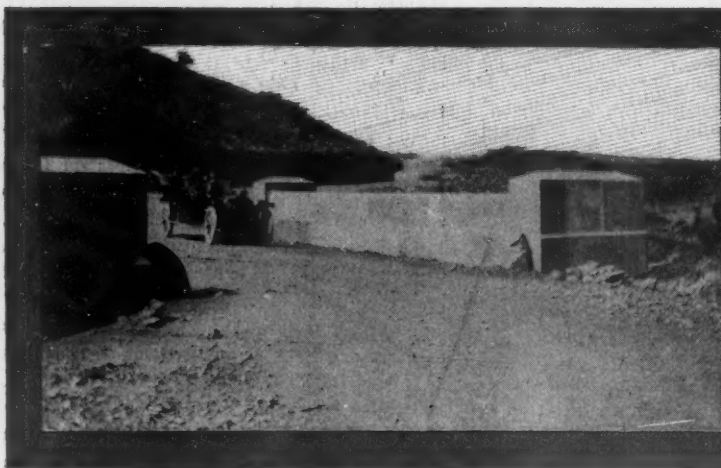
WIDE STONE MEXICAN ROADS NEAR CAPITAL



ROAD BETWEEN REAL DEL MONTE AND VELASCO, A BEAUTIFUL BIT OF MOUNTAIN SCENERY



MAIN STREET OF TLALPAM, A SUBURB OF MEXICO CITY  
SUCH STREETS ARE GENERAL



CEMENT BRIDGES WILL SOON BE MORE ADOPTED ON MEXICAN ROADS



TYPICAL MEXICAN ROAD SCENE, WHERE SANE IMPROVEMENTS ARE SEEN

the winding wagon roads. The road between the capital of Tepic and Guadalajara is good. The writer has been over it on muleback and on foot, shooting along the way, so that he has had an opportunity to know the way thoroughly. There are some steep grades, however, as the road climbs from sea level at Mazatlan to more than 5,000 feet at Guadalajara. The latter city, known as "The Pearl of the Occident," is the second city in the republic, having a population of more than 102,500. It is the capital of the state of Jalisco, which, together with Michoacan, adjoining on the south and east, is known as the granary of Mexico, so great is their fertility and so abundant their crops.

On the way from Tepic to Guadalajara one passes the pretty Lake Magdalena and its town of Etzatlan, while interesting side trips can be made to Ameca, Catarina and Zacoalco, also situated on the shores of lakes. Further south one may visit Sayula, Ciudad Guzman—the latter on the shore of a small but beautiful mountain lake—and the old towns of Tuxpan and Atoyac, both hoary with age and shrouded in a mist of legends which are well worth hearing.

Having traveled thus far south, one can

continue past the volcano of Colima, the only active cone on the North American continent, to Manzanillo, a pretty harbor which has been improved lately by the government of Mexico at a cost of \$4,000,000. If, however, one prefers to linger in Guadalajara to making these somewhat arduous mountain runs, he will find the finest of macadamized streets extending far out into the surrounding country and many suburban villages which are of the greatest interest. Here is a beautiful lake, Agua Azul, with a large park surrounding it, in which one can drive at will. The most famous pottery works in the republic are at Guadalajara, and some of the Indians, who do this clay modeling in their own brush huts, are wonderful artists. Such curios can be bought here much cheaper than they can in the City of Mexico, and it pays to pick up all the trash one wants to carry in the smaller towns. In Tepic and Colima beautiful

tropical skins can be bought for a song, while they are almost worth their weight in silver in Mexico's plateau cities.

Leaving Guadalajara, bound at last for the capital of the republic, the motorist will stop at Lake Chapala, a sheet of water 60 miles long by 20 wide, and the finest resort in Mexico. In beauty it rivals the famed Lake Como, and lies over the ruins of what was once a populous stone and marble city, built by one of the dead Indian races, the name of which even is now forgotten. The proper way to see Chapala is to go not to the town of Chapala, but to the *hacienda* of Ribera Castellanos, on old Point Fuerte, just where the Santiago river leaves the lake, after flowing into it as the Rio Lerma. It is only about 50 miles as the crow flies from Guadalajara to Ribera Castellanos, but the trip is full of interest and the climb not great, as both lake and city are at about the same altitude—5,000 feet.

The tourist can take needed rest and recreation at Lake Chapala, cruising on the lake either in the power and sailing boats belonging to the *hacienda*, or, more interesting still, by hiring one of the huge Indian sailing canoes and camping in it for 2 or 3 days, piloted around the shores

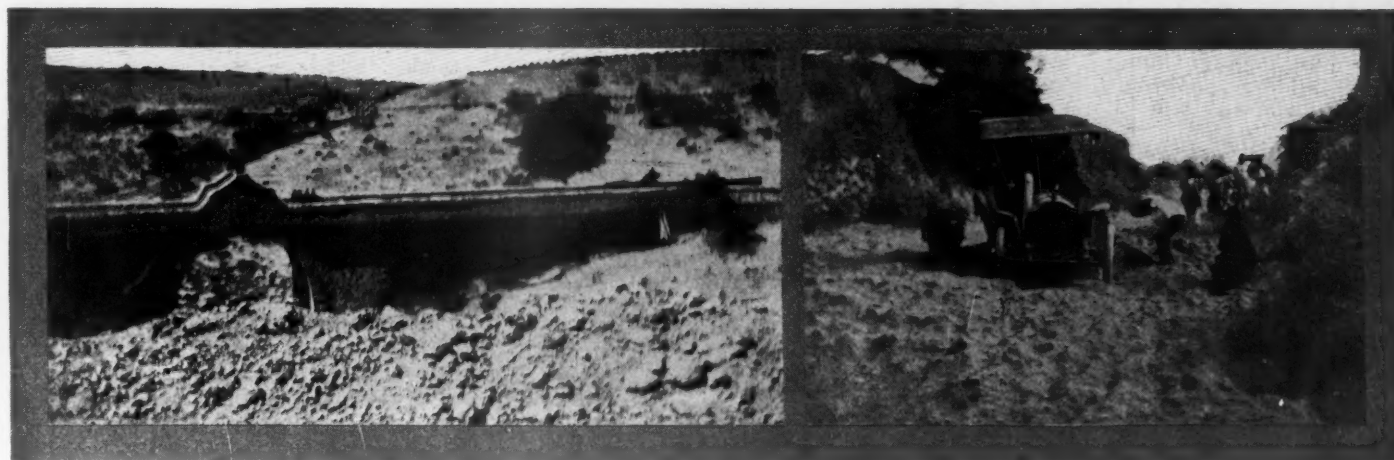






PUENTE QUERADO, A STONE ROAD PUT DOWN BY TOLTECS OR AZTECS, AND YET GOOD

CLEARING THE STONES FROM AN OLD STONE ROAD CALLED THE CAMINO REAL, LEAVING TULA



ONE OF THE OLDEST BRIDGES IN MEXICO USED FOR TOURING

of Mexico's inland sea by the brown-skinned owner and viewing on the way many old Indian villages, among them Jamay, a town which was old when Cortez came and which now contains an ancient statue of Pope Pius IX, 72 feet in height and about 25 feet in diameter at the base. The great statue faces in two directions, the Pope having been denied the privilege of a back, and is supposed to watch over the lives and dealings of the dwellers in the little town.

At Lake Chapala one is fairly entered upon the great Mexican plateau, a land of healthful climate, warm sun, blue skies and picturesque cities. Civilization is much more highly developed here than in the hot countries, despite the old Spanish saying, "*Los Países del Sol Dilatan el Alma*"—"The lands of the sun expand the soul." The ruins of all the great cities built by the Ottomies, the Toltecs, the Texcocans and the later Aztecs were erected on this plateau. It was only after the tribes now known as the Mayas were driven from their homes on the tablelands of Mexico that they went into the jungles of Chiapas and Campeche and Yucatan and there built stone cities of their own.

Roads become better on the plateau also,

and from Lake Chapala on into Mexico city the driver will have less trouble than in the less-developed coast country. Cutting a corner of the fine state of Michoacan, one can visit the capital, Morelia, a city of about 40,000 people, see Lake Patzeuaro, one of the beauty spots of Mexico, and then shoot straight across Michoacan and the greater part of the state of Mexico into the capital city. To do this he must find a trustworthy guide, who has been over the road and who has the intelligence of direction, so rare among Mexican Indians. Such a man will cost 50 cents or \$1 a day, silver—25 to 50 cents American money—and his board.

It is not necessary that such a man should speak English—in fact, it is better if he does not, for with this accomplishment he will about double his demands for pay and tips, while if he does not speak any language but his own he can understand signs and point out the roads just

as well. All necessary Spanish phrases for actual travel through Mexico can be picked up from a guide book in a few days, and the man who does not know a word of the language can enter the country from either end or side and get through without trouble. Provisions may cost him a little more through unfamiliarity with the language, but otherwise he will have no difficulty.

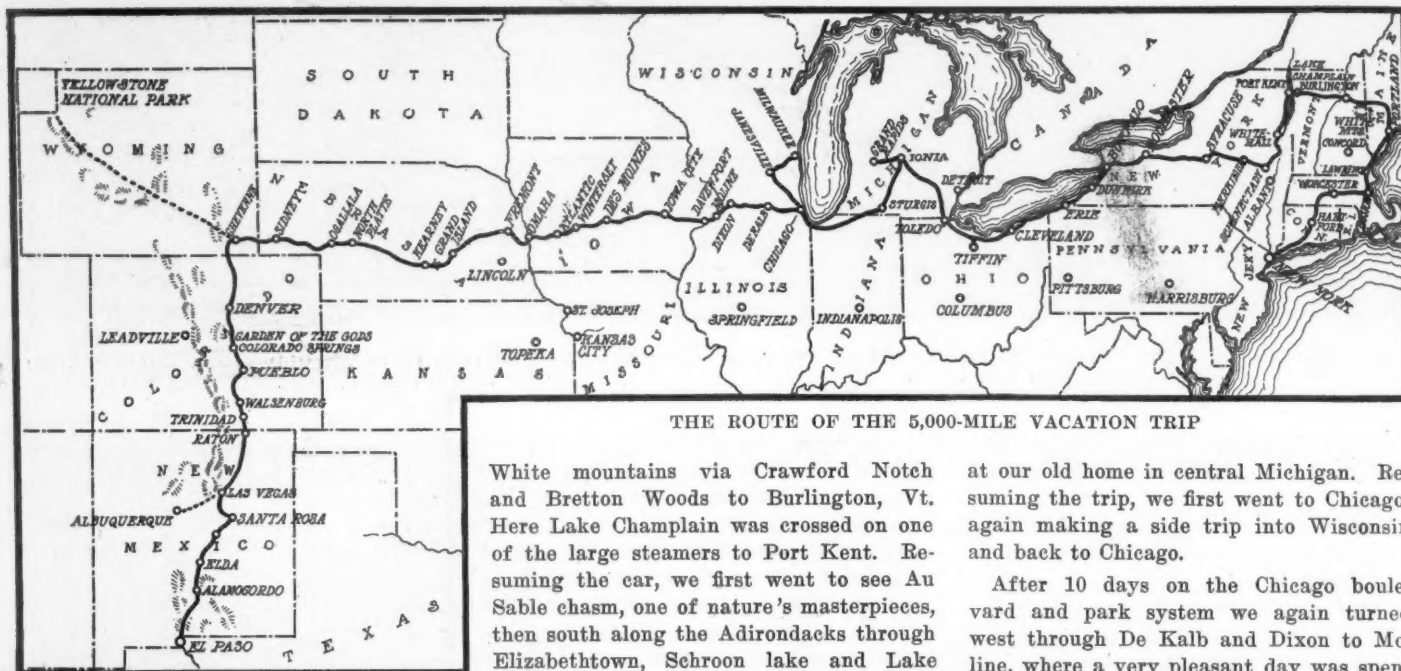
Once arrived in Mexico city, there are innumerable side trips to be taken through the Federal District, Morelos, Tlaxcala, Hidalgo, Puebla, Queretaro and down to the coastal state of Vera Cruz. The route to the city of Puebla, 25 to 100 miles distant, in an air line over a very rough road has been the scene of many contests and is the course most frequently chosen for road races. At Vera Cruz and at Tampico are ports on the Gulf of Mexico, and there are good roads, considering the general undeveloped condition of the country, to all of these.

Should the tourist desire to go back to the border in his car instead of shipping it, he can follow the plateau to Laredo, Eagle Pass or El Paso, and see on the way the great mining camps and smelters of northern Mexico.





# Routes and Touring



THE ROUTE OF THE 5,000-MILE VACATION TRIP

## Five-Thousand-Mile Vacation Trip

**A**BUASCALIENTES, MEXICO—Editor Motor Age—Some of the readers of Motor Age may be interested in a combined business and pleasure trip which the writer and wife made last summer, going into eighteen states, from New York to El Paso.

Having made business trips every year to the leading trade centers of the United States by train, we thought to vary it this year by a motor trip, and to this end ordered a new Velie 40 shipped to New York, equipped in the regular way, with the exception of the tires, which were 35 by 4½ instead of the usual 34 by 4 tires. To my mind the additional expense was well warranted for such a long trip, as but one puncture occurred on the 5,124-mile journey and that after over 3,923 miles had been covered over all sorts of roads.

### Unusual Trip

The trip was quite an unusual one for such a long jaunt, as no extra equipment of any kind was carried, except extra tires—no chauffeur, mechanic or pilots were taken along, the routes of the Blue Book being depended on for the journey as far as Omaha and from there to El Paso state maps were procured, which were marked from place to place by the garage men along the route. We found both to be very reliable.

Leaving New York we first went to Boston, then along the shore to Portland, Me., turning west through the beautiful

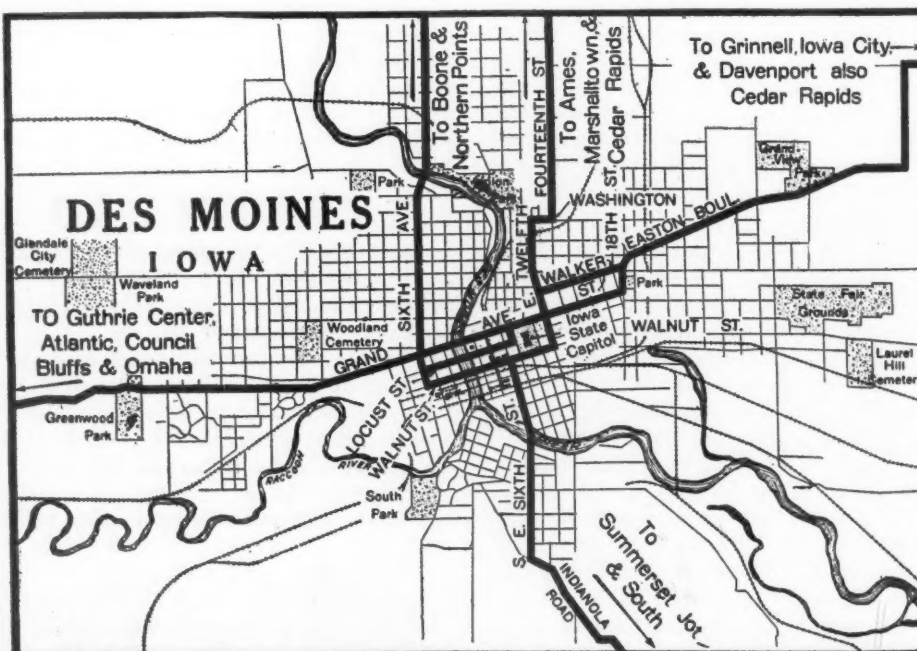
White mountains via Crawford Notch and Bretton Woods to Burlington, Vt. Here Lake Champlain was crossed on one of the large steamers to Port Kent. Resuming the car, we first went to see Au Sable chasm, one of nature's masterpieces, then south along the Adirondacks through Elizabethtown, Schroon lake and Lake George to Saratoga. Though it had been raining heavily previous to this time, the early part of June, and in many places the roads were heavy and slippery, necessitating careful driving over the crooked, hilly roads, this part of the trip was enjoyed very much and the scenery was by far the most beautiful encountered on the whole trip.

From Saratoga we went via Schenectady and the Mohawk valley to Syracuse, then Rochester, Buffalo, Erie and Cleveland to Toledo, where we left the through route west to visit for 10 days

at our old home in central Michigan. Resuming the trip, we first went to Chicago, again making a side trip into Wisconsin and back to Chicago.

After 10 days on the Chicago boulevard and park system we again turned west through De Kalb and Dixon to Moline, where a very pleasant day was spent viewing the Velie and Moline factories. A very pleasant drive was had through the Rock Island arsenal and to Davenport. The route selected for the trip across Iowa was the river-to-river road over which the Glidden tourists had just passed. Iowa was quite a surprise to us, for where we had expected a level country it was one chain of hills and valleys, but with almost perfect roads, so much so that our best day's run of the trip was made in this state, 186 miles in 9 hours' running time.

The very next day after a heavy rain

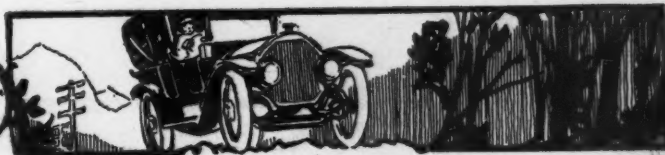


Prepared by The Automobile Blue Book Publishing Co.

TOURING ROUTES IN AND ABOUT DES MOINES, IA.



# Information



we traversed but a few miles before the slippery gumbo forced us to lay up for the day, it being almost impossible to stay on the high crowned road. A little gravel and oil would make this a very fine road on which fast and safe driving could be indulged in at any time.

## Roads Very Good

From Omaha the usual route was followed to Fremont and then through the Platte river valley via Columbus and Kearney to North Platte. The roads were very good in most places, with the exception of some sand in spots; however, the

second best day's run was made in this state—175 miles in 8½ hours.

From North Platte to Cheyenne the south branch of the Platte was followed to Big Springs, then north and west through Chappell and Sidney, following the Union Pacific railway.

We had intended extending our trip to the edge of Yellowstone park, but friends in Cheyenne advised us that at that time it was no pleasure trip, so the car was left in Cheyenne and the train taken instead. When the few bad places are made passable the trip to the edge of the park

will be a very delightful one and part of it through beautiful scenery. After so much motor riding the trip through the park seemed very slow and tiresome. The park roads are very good and under certain regulations motor coaches could be safely run.

## In Colorado

Returning to Cheyenne, our car was again taken for the remainder of the trip, and it was very welcome indeed after the dusty and hot trips on the train and park coaches. Denver was the first stop made, our course being through Fort Collins, Greeley and Longmont to Denver. For a couple of days many trips were made around this handsome city, then Colorado Springs was made a stop for a day, with side trips through Manitou, the Garden of the Gods and many other picturesque spots.

This was the last of the fair or good roads, as this whole part of the state had been treated to a cloudburst and on our road four bridges had been washed

## Notes of 5,000-Mile Tour

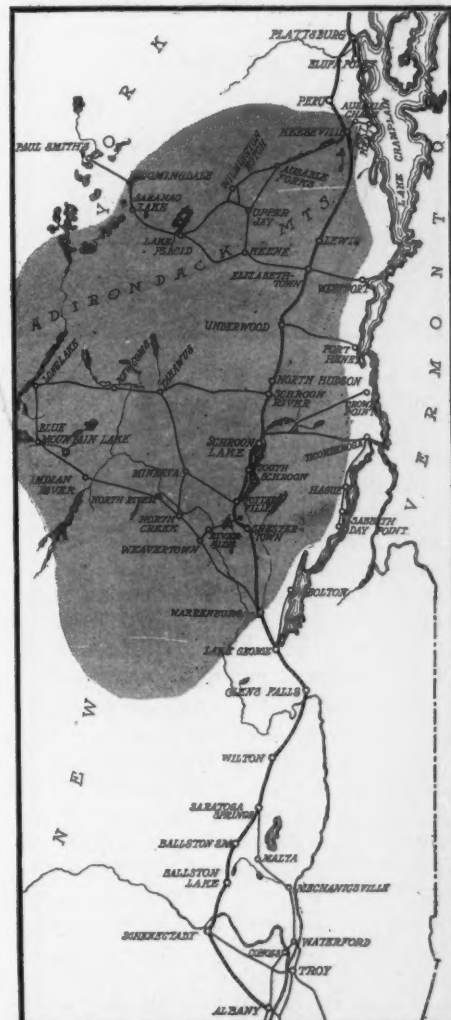
MILES	TOWNS	FUEL	COST	ROAD CONDITIONS
0.	Filled tank	18 gal.	\$3.80	
225.3	New York City	24	4.80	City and suburban trips
327.2	Middletown, Conn.	15	3.70	Very good and bad roads
386.6	Warren, Mass.	5	.90	Mostly very good roads
461.7	Boston	10	1.70	Very good
537.2	Boston	7	1.12	Very good
586.6	Newburyport, Mass.	10	2.00	Mostly very good
667.8	Portland, Me.	5	.90	Very good
721.8	Fryeburg, Me.	5	1.00	Good
776.8	Littleton, N. H.	5½	.90	Good mountain roads
833.4	Barre, Vt.	5½	.90	Good mountain roads
898.6	Burlington, Vt.	5	1.00	Good mountain roads
930.6	Elizabethtown, N. Y.	4	.80	Good and very bad; muddy
1007.1	Glens Falls	6½	1.30	Good and very bad; muddy
1068.3	St. Jonesville	7	1.20	Good and very bad; muddy
1156.6	Syracuse	9	1.80	Good and very bad; muddy
1265.2	Rochester	8	1.60	Very good
1337.7	Buffalo	5	.70	Very good
1450.0	Girard, Pa.	6	1.30	Very good
1553.6	Elyria, Ohio	7	1.28	Very good
1650.3	Bloomville	7	1.05	Very good
1710.7	Toledo	5	.80	Very good
1762.9	Ann Arbor, Mich.	5	.85	Very bad and very sandy
1854.4	Portland	7	1.05	Very bad and good
1904.8	Portland	5	.75	Fair country roads
1984.0	Grand Rapids	8	1.20	Mostly very good
2097.3	Lake Odessa	11	1.75	Very good roads
2172.6	Charlotte	8	1.12	Very good roads
2238.4	Burr Oak	3	.50	Some good and some very bad
2246.3	Sturgis	8	1.20	Very bad sand and muddy
2260.2	Sturgis	4	.60	Good country roads
2344.3	La Porte, Ind.	5	.80	Good country roads
2431.2	Chicago	10	2.00	Good and bad macadam
2518.9	Chicago	9	1.45	Fine boulevards
2556.3	Chicago	5	.80	Fine boulevards
2676.5	Waukesha, Wis.	10	1.90	Very good roads
2738.8	Whitewater, Wis.	8	1.35	Very good roads
2878.4	Chicago	10	1.60	Mostly good, some bad mud
2931.0	Chicago	10	1.60	Fine boulevards
3070.3	Morrison	10	1.65	Very good
3118.2	Moline	5	1.00	Mostly sandy and hilly
3184.1	Iowa City, Ia.	5	.80	Very good
3253.8	Grinnell	5	.80	Very good
3365.5	Guthrie Center	10	1.40	Very good
3390.1	Exira	5	.85	Very muddy and slippery
3470.8	Omaha, Neb.	5	1.00	Very good
3557.1	Fremont	9	1.80	Very good
3676.6	Grand Island	5	1.00	Very good
3727.1	Kearney	7	1.40	Very good
3766.8	Lexington	3	.60	Very good
3850.1	North Platte	5	1.00	Some bad sand, rest good
3901.8	Ogallala	4	.80	Very good
3969.5	Sidney	6½	1.30	Very good
4072.7	Cheyenne, Wyo.	8	1.60	Mostly good
4186.4	Denver, Colo.	8	1.90	Good, some bad mud
4228.4	Denver	5	1.05	City streets
4299.8	Colorado Springs	5	1.00	Good, some slippery
4365.1	Pueblo	7	1.40	Good, some slippery
4425.1	Walsenburg	5	1.25	Bad washouts and sand
4465.5	Trinidad	10	2.50	Bad washouts and sand
4490.1	Raton, N. M.	4	1.00	Steep grades, but good
4538.3	Springer	5	1.30	Fair trails, some mud
4620.5	Las Vegas	12	3.00	Fair, some bad washouts
4682.7	Santa Rosa	8	2.00	Both good and poor trails
4728.2	Vaughn	5	1.25	Both good and poor trails
4762.7	Corona	5	1.25	Fair, one very bad hill
4812.4	Carrizozo	9	2.70	Muddy and very bad washouts
4875.2	Alamogordo	8	2.00	Muddy and very bad washouts
4978.4	El Paso, Texas	..	...	Muddy and some very good

In tank ..... 493½  
8½

Total gallons ..... 485  
146.4 Added as odometer was made for 34-inch wheels.

5124.8

Mileage given does not tally with shortest distance between the places, as oftentimes long detours had to be made, and tours were taken around many of the cities passed through.



THE SIDE TRIPS THROUGH THE ADIRONDACK MOUNTAINS







ONE OF THE SIGN BOARDS IN THE NEW SANTA FE TRAIL

tour. For the balance of the trip—Oklahoma City to Fort Smith, Ark.—it is suggested that you make it a 4-day affair, stopping at Okemah, Muskogee, Sallisaw, then Fort Smith. If you make it a 2-day trip, then make the stop at Muskogee.

#### WILL SLEEP IN CAR

Chicago—Editor Motor Age—A combination tourist, sleeping, observation and dining motor car has been constructed to my order and Mrs. Newton and I contemplate a 3,000-mile outdoor trip with this vehicle, living day and night in the open and securing the enjoyment passed up by the motorist who hurries to reach the next town at night so he can stop at a hotel.

The car is a four-cylinder 18-horsepower four-passenger Franklin touring car. When it is on the road it will present an appearance differing little from any ordinary tourist's car. The really striking part of the whole affair is its appearance when transformed for sleeping. In planning this outdoor life we thought, why carry a tent when the top is a good tent and why carry cots and springs when with very little effort the touring body with its upholstery and springs could be converted into berths?

Accordingly we sawed vertically through the back of the front seat near the sides, and where the back joins the seat placed hinges, permitting the back to fall and bridge the open section of the tonneau between the forward and rear seats. In front of the forward seat a raised section of light wood completes the berth arrangement. Over this whole surface, when let down for sleeping, is placed a pneumatic mattress forming a bed, surpassing in comfort many which the tourists would find if they stopped at hotels.

We want camp life and we want touring. This way we hope to get both. Granite and aluminum cooking utensils and a one-burner alcohol stove are part of

the equipment which will weigh 150 pounds altogether. My itinerary will be eastward, probably through Pennsylvania to New York and Boston and back to Chicago through Syracuse, Buffalo and other eastern points.

At the beginning of the day when we awake there is ample room in the improvised sleeping car to dress. The next move consists in rolling up the bed clothes and stowing them away, while the pneumatic mattress will occupy a very small space when deflated. The side curtains are rolled up, the board at the front of the car is removed, the front seat back snaps up into place and, with the curtains pulled off, the vehicle is again an ordinary car.

During the night the fireless cooker has

prepared part of the morning meal; the one-burner stove does the rest. After breakfast we will start, if we do not choose to tarry in some pleasant wooded spot, and traveling will be leisurely.—H. C. Newton, M. D.

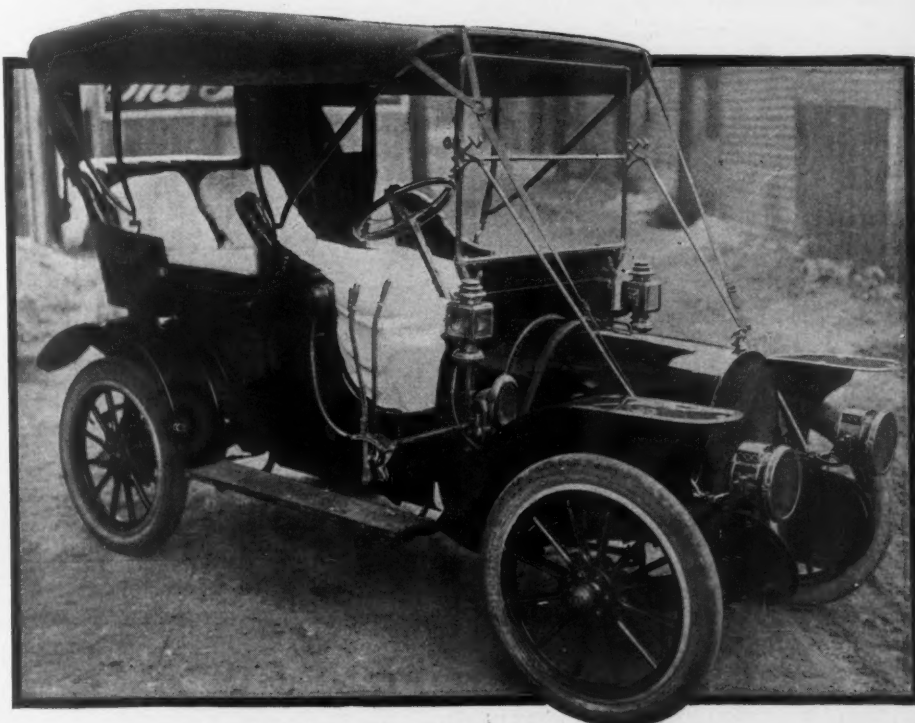
#### TEXAS-DENVER ROUTING

Corpus Christi, Tex.—Editor Motor Age—Will Motor Age through the Routes and Touring Information Department give me the best route from Corpus Christi, Tex., to Denver, Colo.?—Keith Kinney.

From Corpus Christi motor to Beeville, thence through Karnes City, Kenedy and Floresville to San Antonio. Going on to Austin, Tex., the route lies through New Braunfels, San Marcos and Austin, thence Georgetown, Belton, Waco, Hillsboro, Cleburne, Fort Worth. From Fort Worth to Wichita, Kan., Motor Age suggests that you follow the route of the 1910 Glidden tour, which passes through North Fort Worth, Saginaw, Hicks, Rhome, Decatur, Sunset, Fruitland, Bowie, Stoneburg, Terrell, Ryan, Hastings, Temple, Walter, Lawton, Rohrer, Apache, Anadarko, Chickasha, Pocassett, Minco, El Reno, Yukon, Oklahoma City, Britton, Edmond, Guthrie, Orlando, Enid, Kremlin, Pond Creek, Medford, Renfrow, Caldwell, Drury, Wellington, Peek, Wichita.

From Wichita to Hutchinson, Kan., the route lies through the towns of Maize, Colwich, Mount Hope, Haven, Yoder, Elmer and Hutchinson. At Hutchinson you will strike the new Santa Fe trail, which was described and illustrated by a map in Motor Age, issue April 20, pages 24 and 25. Follow this route as outlined to Colorado Springs, thence on through Palmer Lake to Denver.

You are referred to the map on page 22 which shows the Fort Worth-Oklahoma City portion of the route.



TOURING CAR EQUIPPED AS A SLEEPER



# The Readers' Clearing House

## CARBURETER ADJUSTMENT

**P**AO LA, Kan.—Editor Motor Age—Will Motor Age kindly answer the following questions?

1—What is the purpose of the adjustment beneath a model B No. 4 Stromberg carbureter?

2—Does it regulate the mixture or not? I have been informed by some that it does, while others claim that it does not and should be kept screwed down to the limit.

3—Does the raising or lowering of the float affect the richness or not?—Carbureter.

1—By the adjustment beneath the carbureter it is assumed that you refer to the milled nut B, Fig. 1. This controls the air inlet valve E through the low-speed spring F and affects the mixture by varying the quantity of air admitted to the carbureter.

2—The adjusting nut B should not be turned up as far as it will go but should be turned up till the valve seats lightly. If you refer to the nut G, through which the drain cock passes, this does not affect the mixture and should be screwed up solidly.

3—The height of the float affects the mixture only by regulating the quantity of gasoline in the reservoir.

## LOCATING A KNOCK

Mayville, N. Dak.—Editor Motor Age—We have a Ford model T touring car and have noticed when going at a speed of 30 miles an hour or so there is a knock in the engine. This also occurs when going down hill. It's power is amply strong. I should like to know the cause of this knock.—L. Cornelius.

Your trouble, evidently, is due either to a loose fender or a loose bearing at the front end of the motor crankshaft. Tightening of the fender is a comparatively simple matter, which requires no instruction; tightening of the motor bearings, however, will require that the motor be removed from the chassis, the crankcase disassembled, and a

shim or two taken out from between the cap and case. The Ford Motor Co. issues an instruction book for model T cars in which directions are given for the benefit of those who are not thoroughly familiar with the procedure necessary to adjust crankshaft main bearings. This book may be obtained by Ford owners from any branch or agency, or direct from the factory at Detroit, Mich.

## LOOK AT INLET VALVES

Prairie City, Ia.—Editor Motor Age—I have a Jackson 30, 1910 model, and would like Motor Age to advise me as to the following: When the engine is running at any speed, whether slow or fast, there is a peculiar sound in the carbureter, as if it were backfiring, but there is no flame or discharge from it and the sound is more dead. I would like to know what causes this and whether it would cause one cylinder to miss.—Loren M. Jenks.

Your description of the trouble indicates an ill-seating inlet valve, which not only causes misfiring in the cylinder but at the same time gives rise to the backfiring sound in the carbureter. It is possible, however, that your trouble might be caused by a few globules of water in the float chamber of the carbureter, which at intervals are sucked up into the spraying nozzle and choke off the supply of gasoline; there may be a little dirt in the float chamber of the carbureter or the spraying nozzle, which has practically the same effect, only perhaps to a lesser extent; or your air valve may be improperly adjusted so that the mixture contains too much air and not enough gasoline.

## PHOTOGRAPHING CAR AT SPEED

Champaign, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor Age kindly answer the following questions:

1—Why is it in photographs of a swiftly moving motor car that the top lines of the car appear to be in advance of the lower portion of the car?

2—I often have noticed the engines of cars missing explosions while running idle, but seem to fire regular as soon as the load is applied, even when the throttle and spark controls were untouched. Can Motor Age explain this?—M. R. Johnson.

1—Photographs of swiftly moving motor cars that have the appearance to which you refer are taken with what is known as a graphlex camera, which has a shutter that closes like a theater curtain. The exposure, therefore, is made through a long slot of perhaps  $\frac{1}{8}$  or  $\frac{1}{4}$  inch in diameter, according to the adjustment of the timing of the exposure. As the exposure on the negative is made upside down, the shutter as it drops exposes the

**EDITOR'S NOTE**—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

lower part of the picture first and the top of the picture last. As it takes a certain length of time for the shutter to completely open and close the slot through which the exposure is made, it is obvious that when an exposure is being made of a car traveling at an excessively high rate of speed, there will have been an appreciable movement of the car in a longitudinal direction during the time the exposure is being made. Thus, as the bottom of the picture is exposed first and the top last, the top lines of the car are in advance of the lower portion.

2—Many engines are so designed that when running idle the power generated by the explosion in one cylinder is sufficient to turn the motor over so rapidly that owing to the throttled condition of the carbureter the two or three successive cylinders to fire will not get a sufficiently rich mixture to explode, and misfiring will result until the speed is reduced sufficiently for one or two or more of the cylinders to inhale an explosive charge, when another power impulse is given and the action is repeated.

## RUNNING ON EXPANSION

Beach, N. Dak.—Editor Motor Age—Through the Readers' Clearing House will Motor Age state whether or not a gas engine runs on expansion? A claims a gas engine does not run on expansion. B claims it does. A claims after the explosion has taken place there is no more force left. B claims there is force working on the piston to the end of the stroke or until the exhaust valve opens. It was left for Motor Age to decide at what point of the stroke should the exhaust valve open.—R. B. K.

B is right. An engine runs on expansion, as a short study of any diagram for gasoline engine performances will very plainly show. There is pressure in the cylinder of a gas engine from the beginning of the compression stroke to the end of the exhaust stroke. At the beginning of the compression stroke the pressure on the piston in the cylinder increases up to from 50 to 100 pounds, at which time ignition of the charge compressed takes place, followed by rapid combustion. The heat of combustion causes the gases to expand and raises the pressure often as high as 450 pounds. This pressure is not reached instantly but increases rapidly. As the piston descends in the cylin-

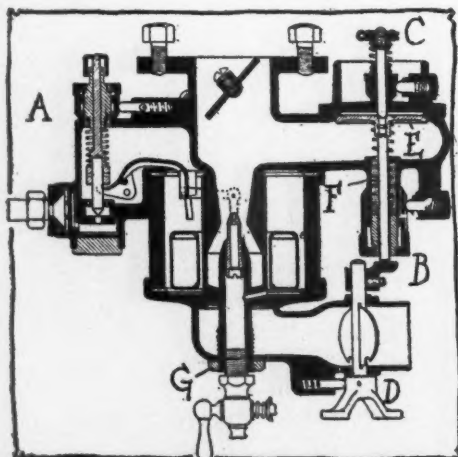


FIG. 1—ADJUSTMENTS OF STROMBERG CARBURETER





# Motoring Questions Answered



**EDITOR'S NOTE**—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

der the pressure is reduced because of the increase in the size of the chamber, but as long as the combustion endures there is expansion in the cylinder and pressure on the piston. Combustion very often is not even complete when the exhaust valve opens, with the result that there is considerable pressure even in the exhaust pipe and muffler. Even if the explosion occurred instantly, the pressure, due to the expansion of the gases, would maintain for an appreciable length of time owing to the fact that it is not released until the piston has descended and the valves open.

Experiments have shown that the exhaust valve should open about 35 or 40 degrees before the crank arrives at the crank end dead center. Owing to the position of the crank at this point, the pressure that still remains in the cylinder and exerts its force upon the piston, cannot be effectively utilized, therefore the valves are opened at this point so that this pressure may be used to help scavenge the motor and make room for the incoming charge.

## USING CAR ON FARM

Lovington, Ill.—Editor Motor Age—Will Motor Age please advise me through the Readers' Clearing House the best way to use a motor car for farm powerhouse power. My car has a bevel gear differential. Must both rear wheels be raised or can one be left on the ground when used in this way?—P. O. Landley.

The best way to use your car for the purpose mentioned would be to secure a pair of large wood or iron rollers, mount them on a shaft arranged underground so the rollers would stick up an inch or so above the floor in a manner that would permit the rear wheels to be driven up onto the rollers; then provide a means of securing the car in this position. The car then could be driven at any speed without using the differential mechanism. Of course it is possible to jack up one wheel, remove the tire and apply a leather belt to the rim; or to rig up a pulley that could be attached to the spokes and arranged at the side of the wheel and the power transmitted by belt from this pulley.

This method is not the most practical because the power from the motor would

be transferred through the differential mechanism, and subject it to wear and strains for which it is not designed; hence, its length of life might be considerably reduced. Some of the motor car factories use the roller in the floor system above described for the purpose of driving an electric dynamometer in order that the power of the car might be tested. If desired it might be possible for Motor Age to get the details of construction of one of these systems and illustrate it in these columns for your benefit; and for the benefit of others who may be interested in using their car for the same purpose.

## CONTROL OF THE SPARK

Benson, Minn.—Editor Motor Age—Kindly answer through the Readers' Clearing House the following questions:

- 1—When does an engine run fastest, with the spark advanced or retarded?
- 2—When does an engine heat most and in the least time, with the spark advanced or retarded?
- 3—What are the specifications of the Blitzen Benz?
- 4—Are there any four-wheel drive pleasure cars manufactured in this country?
- 5—Can Barney Oldfield legally do any more racing?—Carl C. Uhl.

1—Under ordinary conditions, according to the way the ignition is generally set, the engine runs fastest with the spark advanced.

2—Under the conditions mentioned in No. 1 an engine will heat quicker when running on a retarded spark, though it is possible, under some conditions, to heat an engine almost equally fast by running with too high a spark, that is, with the spark too far advanced, so that serious preignition takes place while the car or motor runs at a comparatively low speed.

3—The Blitzen Benz, which was made in the factory of the Benz company at Mannheim, Germany, has a four-cylinder motor with a bore of 7.2835 and a stroke of 7.8741 inches. The cylinders are cast in pairs, and the valves are overhead on opposite sides and operated by rocker arms and pushrods from a single camshaft. A Remy magneto is used, but there is provision made for two magnetos. Lubrication is by splash feed in the crankcase and by hand pump, while the cooling system comprises a Benz radiator and gear pump. There are four speeds with direct on high, in the selective sliding gearset from which power is transmitted to the rear wheels through a jackshaft and side chains. The tires are 32 by 4 in front, 34 by 5 in the rear, and the wheelbase is 108 inches.

4—Motor Age has no record of any

four-wheel drive pleasure cars now being manufactured in America.

5—There is nothing to prevent Barney Oldfield from racing in meets not controlled by the American Automobile Association, but he cannot take part in meets sanctioned by this, the governing body of motor car sport in this country.

## MUFFLER FOR STATIONARY ENGINE

McCall, S. C.—Editor Motor Age—Through the Readers' Clearing House kindly answer the following questions:

1—I have a 15-horsepower gasoline engine which has pulled loose at the connection box. The bolts usually break; in fact, they have broken several times when the engine was doing light work. What is the cause?

2—Will I get good results from a 4-horsepower engine if I run the muffler in a box in the ground and cover the box air-tight to deaden the noise? Will it injure the engine any?—A Subscriber.

1—It is certain that the engine is badly out of balance somewhere, resulting in excessive vibration. If the engine has more than one cylinder, it is possible that the pistons have a marked difference in weight. If the crankshaft bearings are badly worn this might result in loosening or breaking the connecting bolts; but if this were the trouble there would be very decided pounding. Improper alignment of the cylinders might show this effect.

Any one or any combination of the causes mentioned may be blamed, but whatever the cause, the breaking of the connection bolts is an indication of serious trouble and one that should be attended to immediately. Overhauling the motor will probably bring the cause to light.

2—To attempt to muffle the engine by exhausting into an air-tight box would result either in stopping the engine or breaking the box. An engine derives its power from

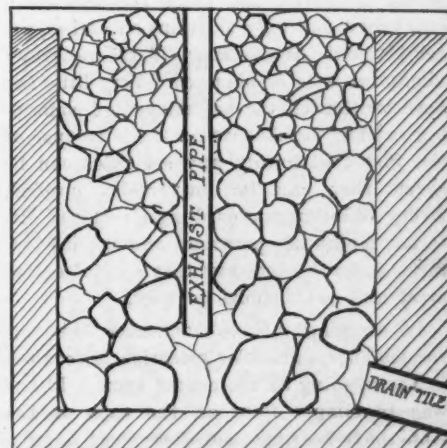


FIG. 2—HOME-MADE MUFFLER FOR STATIONARY ENGINE



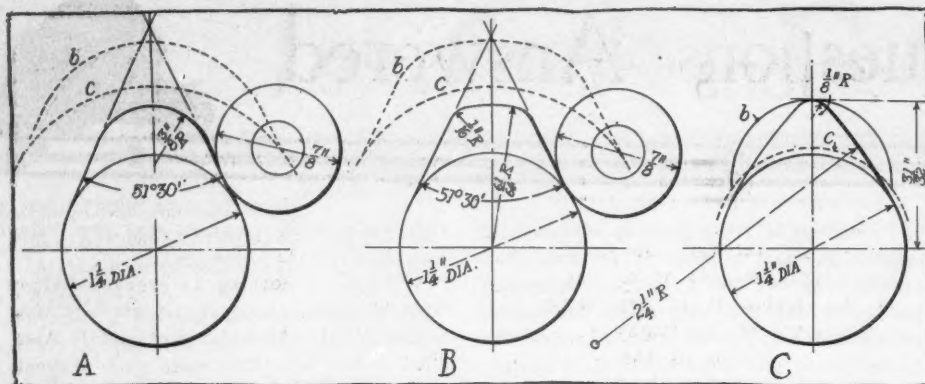


FIG. 3—SHOWING THREE DIFFERENT SHAPES OF INLET CAMS

the difference in pressure on the two sides of the piston. If the motor exhausted into a closed box so that the gases could not escape the exhaust pressure would soon nearly equal the explosion pressure and the motor would stop. The less back pressure existing in the muffler the better it is.

A muffler for a stationary engine that may be made with little trouble or expense is illustrated in Fig. 2. The exhaust pipe is run into a box filled with small stones. This causes the gases to expand slowly and reduces the noise without causing much back pressure.

#### CONNECTING ROD BEARINGS

Iron Mountain, Mich.—Editor Motor Age—  
—I think some information on the proper method of adjusting the connecting rod and crankshaft bearings would be very acceptable to most of us. I would like to know what tension should be put on the bolts and how tight it is safe to make the babbitt bearings grip. Are there any tests which can be made to determine this? I just received my motor back from the factory where it had been sent to have all bearings rebabbitted and properly adjusted. It is now so tight and stiff that with an 18-inch leverage on the crankshaft it is very hard to start to turn, but does not grip or chatter after I have it moving. Is this too tight? Any information on this subject will be gratefully received.—E. A. Jones.

To properly adjust the connecting rod bearings of a motor, more skill is generally required than the average motorist possesses; whilst to adjust the main bearings of a crankshaft not only skill but special equipment usually is necessary if the necessary alignment is to be obtained. Very little has been written on the adjustment of connecting rod and crankshaft bearings because of the fact that hardly any set rules can be given that can be universally applied. Every different motor design requires different modes of operation, and special features make it necessary that special equipment and precautions be used.

In scraping in the crankshaft bearings, for instance, particular attention is required in the meshing of the engine gears. If one was to simply take off the caps of the crankshaft bearings and dress them down a little, as is customary in taking up some connecting rod bearings, it is quite probable the

shaft would be thrown out of alignment because of the fact that some bearings are apt to wear faster than the others; and if the wear was considerable the engine gears would be thrown so tightly into mesh that they would be very noisy.

Motor Age knows of no tests used for ascertaining the tension that should be applied to bolts in tightening them. It is, of course, figured out when the motor is designed, but it is part of a mechanic's training to know when a bolt or nut is drawn down sufficiently tight. The nuts and bolts which secure connecting-rod and crankshaft bearing caps should be drawn down as tightly as possible without straining the material from which the bolt is made. It is customary in scraping in babbitt bearings to make them considerably tighter than bronze-bushed bearings. A bronze bearing never should be so tight that the motor cannot be turned over freely, whereas a babbitt bearing generally is made so tight that the motor can only be turned over with difficulty. It is common practice to run a motor in, under power other than its own, if its connecting rod and crankshaft bearings are of babbitt. It is possible that this has not been done with your motor, so it will be necessary to wear itself in under its own power. This is not a particularly advantageous method, because a large quantity of oil should be fed to the motor while it is stiff, which tends to carbonize the cylinders. After running for 5 or 6 hours, however, the motor should run quite freely. If it does not do so it is quite possible that the bearings are either a little too tight or that absolute alignment of the pistons in the cylinders has not been obtained.

#### ETHER MIXED WITH FUEL

Chicago—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions:

1—Would a method of injecting a small amount of ether into one cylinder help in easy starting?

2—Would the use of ether injure the engine?

3—What kind of ether should be used?—S. F. M.

1—When ether is mixed with the gasoline in the proportion of 3 ounces of ether to 5 gallons of gasoline and injected into the cylinders it is found to improve the starting

in cold weather. A very good way is to have a small bottle with a mixture of 1 pint of gasoline and ½ ounce of chemically pure ether and pour about a teaspoonful into each priming cup when starting.

2—Motor Age has no record of injurious effects of the use of ether in this way.

3—When the term ether without any qualification is used it is universally understood to mean diethyl ether,  $(C_2H_5)_2O$ .

#### SHAPE OF INLET CAMS

Baton Rouge, La.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions?

1—I would like some information on how to stop leaks in cast, or stamped housings, such as differential housings, where the contained grease seems to come through small capillary tubes through the metal in small quantities. In cases where only a small amount of grease gets through, so there is only enough to discolor the paint, could the inside of the housing be coated with shellac or varnish that would resist the action of the grease, or could it be tinned well with soft solder, making it absolutely tight?

2—I have read in other issues of Motor Age articles discussing different shaped cams for raising inlet and exhaust valves, getting the impression that certain cams, though quiet in action, were not of such shape as to make the motor have maximum efficiency. Will Motor Age show by diagram the inlet valve and exhaust valve cams of a motor designed especially for quietness, and the same for a motor designed for efficiency, regardless of noisy action.—M. S. Dougherty.

1—Your trouble is rather an unusual one, but either of the methods which you suggest for removing the trouble seem practicable.

2—In Fig. 3 three different shapes of inlet cams are shown; of these, A and B are designed especially for quietness, while C is the most efficient as far as power is concerned. The rate and duration of opening of a poppet valve depend on the shape and size of the cam, and the type and size of the cam-follower. The most extensively used forms of cam-followers are the roller, the V-shaped, and the flat or mushroom valve-lifter foot. The valve-opening diagrams with the roller and the V-shaped valve-lifters depend upon the radii of the contact surfaces. Identical diagrams are often obtained regardless of whether the cam circle or the follower-roller or spindle are made of a certain size, provided the relation between them remains the same. As for the cams themselves they can be made in very different shapes, as shown in Fig. 3, A and B being designed for use with a roller lifter and C for the flat or mushroom type. They are all inlet cams with small lift of ⅛ inch, and shaped for the same valve opening of 210 degrees of crankshaft movement.

With respect to motor power, in slow



running motors the difference between cams A and B may be absolutely imperceptible. With these cams under the assumed conditions the inlet gases are strongly choked during the earlier part of the valve opening, and consequently there is considerable vacuum inside the cylinder during this period. This vacuum, besides causing direct loss of power, also sucks oil past the piston, which tends to cause carbonization. A point in favor of high intake velocity is a more complete vaporizing and mixing of the gas particles with the air when entering the cylinder. But normal gas velocities should be sufficient for that so that any increase would be a pure loss. With cam C the valve opening is much quicker at the beginning than with the other cams. The theoretical gas velocity drops much more quickly with cam C than with cams A and B, and consequently the intake gases are much less choked with the cam during the early part of the inlet. The difference in the velocities with cam C and the roller cams respectively amounts to from 20 to 30 per cent during a crank motion of 45 degrees, and furthermore the choking effect is proportional to the second power of gas velocity at least.

The quantity of the first charge admitted to the cylinder during the first half turn of the crank will be considerably greater with valve-lifting mechanism C, and this will reduce the vacuum inside the cylinder, together with its bad results. This mechanism is decidedly advantageous except that it requires very strong valve springs because the first part of the curve of cam lift is very steep. The stronger the valve springs, the more the valve seat and valve mechanism are subject to wear. Construction C is particularly disadvantageous because of the great sliding motion of the cam against the lifter, which is most noticeable.

#### HAS TIRE TROUBLE

Uvalde, Tex.—Editor Motor Age—Will Motor Age answer the following questions in the Readers' Clearing House columns?

1—In sectional patches, in casings, should the edges of new fabric just meet the edges of old fabric surrounding the place where the old fabric was removed,

or should it lap a little on the next layer? There is a difference of opinion on this subject which your answer will remove.

2—Should an extra layer extend over the last one, on the outside, covering all joints?—A Subscriber.

1—The sectional patches should overlap, as illustrated in Figs. 4 and 5. When the case has blown out from an injury, it can be permanently and satisfactorily repaired by applying new fabric and gum on the outside and a two or three-ply patch on the inside. Both inside and outside patches should be considerably larger than the injury. First remove the old cover, or rubber, some distance on both sides of the injury, as shown in Fig. 4, say 4 or 5 inches on either side.

Fig. 5 represents a sectional view of Fig. 4, showing the extent of the outside and inside patches around the sectional circumference of the tire. In many cases, where the injury is more on the side, or down closer to the bead, the patch is brought down over the bead, as is partly shown at A in Fig. 5. If an injury is at all serious, it is nearly always necessary to remove one or two plies of fabric, and in removing the fabric it should be stepped down, so that when replaced with fresh fabric one ply will overlap another. Never remove more than two plies. After the fabric has been removed, clean thoroughly, inside and outside, with benzine to remove all foreign substances. Work cement between the plies of fabric at the ragged edges of the damaged portion and apply a coat to the fabric; allow it to dry for from 2 to 5 hours, then apply another coat and let it dry the same as the first coat. Next apply the patches.

2—If two plies were removed from the outside, three should be replaced, so that in building up, the first layer, when applied, will fill up the space made by the removal of the second layer; the second layer of the patch will overlap the first step and replace the first layer removed, and a third layer is then applied which extends up to the rubber. The inside patch should be composed of two plies much longer than the outside patch, as designated by the dotted lines in Fig. 5, and the last ply, which will come in contact

with the tube, should be larger than the first ply. The object of the inside patch is to strengthen the case, prevent bulging at the patch and to prevent the tube from being pinched by the ruptured fabric.

#### BABBITT-THROWING HABIT

Helena, Ark.—Editor Motor Age—Kindly advise me through the Readers' Clearing House why the back connecting rods on most all makes of cars loosen and throw babbitt before the front ones do.—J. H. Downs.

The back connecting rods on most all makes of cars never are allowed to loosen sufficiently to throw babbitt; very many cars have no babbitt to throw, their bearings being of bronze; Motor Age never has heard of such trouble being characteristic of most all makes of cars. It is possible some certain make or makes of cars have shown the characteristics to which you refer, but in such cases the trouble must have been due either to error in the design or construction of the bearings or lubrication system.

#### BAILEY TREAD TIRES

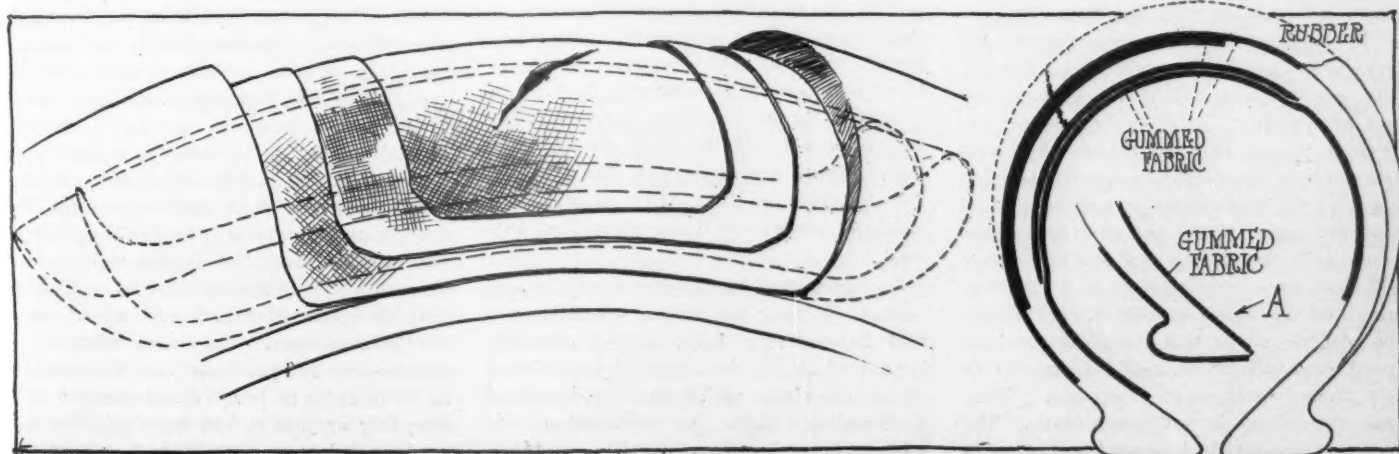
Edgar, Wis.—Editor Motor Age—Will Motor Age through the Readers' Clearing House tell me if a Bailey tread gives greater mileage than the plain-tread tire?—A. C. Wagner.

Practically all the reinforced types of tires give somewhat greater mileage than plain-tread tires that are otherwise the same.

#### ONE OR TWO JOINTS?

Bloomington, Ill.—Editor Motor Age—Through the Readers' Clearing House I should like to know which of the two is the better practice in building a car—one or two universal joints?—H. L.

It is difficult to say in looking at the point from every angle which of the two is the better practice. The single universal joint, however, is inclined to be the more popular. Heavier cars as a rule use the two universal joints, while the lighter cars use the single universal enclosed in a torsion tube. However, many of the heavier cars also use the single universal with the propeller shaft contained in a torsion tube, and there are small cars with two universals. It is claimed that more flexibility is obtained on rough roads where the propeller shaft with two universal joints is employed.



FIGS. 4 AND 5—RESPECTIVELY SHOWING HOW TIRE BLOWOUTS SHOULD BE REPAIRED

# Manufacturers' Communications

## THE ELECTRIC FIELD

**D**ETROIT, Mich.—Editor Motor Age—It seems that the average prospective buyer of a modern electric motor car, before looking into its merits, does not realize what a different sort of a vehicle the electric of today is when compared with the models of the days when the electric car first was put on the market on a substantial scale. He does not stop to think that years of experience have brought about such marked evolution and improvement in this type that the efficiency of an electric carriage or an electric commercial vehicle is nothing short of remarkable nowadays. The motorist recalls models of a decade back which carried a couple of tons of storage around on four wheels at scarcely better than an overgrown snail's pace, and perhaps he is under the false impression that the 1911 models are much the same.

Nine years ago, when the gasoline car was struggling for recognition, salesmen of competing electric car makers used to make all sorts of rash promises and claims for their product, especially the mileage it would make on a single battery charge. It almost invariably happened that the cars would fall decidedly short of these claims, and as a result the pleasure electric lost its prestige to some extent.

There were reasons for this unfortunate condition existing then, notably the unimproved forms of battery and the somewhat crude electric motors. The battery maker would guarantee what was considered great mileage in these days—say 40 miles on a charge—and the battery would move the chassis 25 miles and then drop dead. Then, too, it must be borne in mind that in those days garage men, users and even manufacturers did not know how to care for batteries properly.

Because of the lack of speed of the early electric models these never were put into competition with gasoline cars to secure publicity to any extent, and hence motor enthusiasts did not make friends with them as they did with cars which were in the public eye, such as the Vanderbilt cup winners, Glidden tour winners, and hill-climb stars. Today, however, the average person does not realize that electric vehicles are perfectly capable of making creditable showings in endurance and economy tests. There are numerous makes of electric cars which can run more than 100 miles on a single charge at an average speed of 18 miles or better. Obviously the electric never was intended for high speed cup race work, aside from one or two freaks built some years ago. However, everybody is not speed crazy. The majority are satisfied to average 18 or 20 miles an hour in ordinary running.

It is to woman that the electric pleasure vehicle owes its marked development. Had this type not appealed to feminine fancy, because of its simplicity and cleanliness, the electric never would have become so popular. The woman of moderate income has found that she can afford an electric which she can pilot herself, whereas a gasoline car, requiring the expense of a chauffeur, is in many cases prohibitive.

As far as commercial vehicles are concerned, so many mercantile houses employ these that their efficiency and ability is universally known.

Electric vehicles have a great future before them, for, while the gasoline motors are the best for sport, the electric motor is the best for the utilitarian purposes of cities, because the great majority of such service comes within the limits of 50 miles or so for passenger vehicles and 30 miles for commercial vehicles. The hauling of tons of merchandise on a truck from a store to a railroad freight station, the doctor making his round of calls, the transportation of a theater party in a cab or calling tour, in brougham or victoria, are examples of utilitarian service. The suitability of electricity for this service is unequaled and one has only to recall the properties of the electric motor and of the electric storage battery to understand why.—Albert Weatherby, President Electric Automobile Dealers' Association.

## CHALMERS ON OUTLOOK

**D**etroit, Mich.—Editor Motor Age—The entire motor industry, from all I can learn from strictly reliable sources, is now enjoying one of the most prosperous seasons it has ever known. This condition, in my opinion, is bound to continue for all of the well established companies. I believe business generally is going to improve. There have been three things operating against a rapid improvement of business conditions. One is the pending decision of the supreme court in the Standard Oil and a couple of other cases. Another is the delay in the settlement of the reciprocity treaty with Canada. And the third has been bad weather.

So far as the supreme court decisions are concerned, I think they already have been largely discounted by financiers of the country, so that they won't make much of a flurry in business circles, anyway.

So far as the reciprocity treaty is concerned, it looks as if that would be settled before very long, and I certainly hope that it will be settled by our being given complete reciprocity, as outlined by President Taft. In my opinion, this will lead to improved conditions generally throughout the country.

So far as the weather is concerned, spring now seems to have settled in all parts of the country, and this is bound to result in a quickening of activity in all lines of business. The weather has been a bad drawback to dealers in the small towns and rural districts, and one of the encouraging features of the season, from our standpoint, is the large volume of business that has been done in spite of adverse weather conditions.

I often hear it said that the country would be in a bad way if the motor car business were to have a bad slump. That is probably true, but I just want to assure business men that, so far as I can see, there isn't any danger of a slump in the motor car business. The reports of our company today show that we are employing just three times as many men in our plants as we did at this time last year. During the month of April we shipped nearly 200 more cars than we did during the same month of last season, and have business on our books which guarantees a still bigger increase for May and June.

A few buyers may have received the impression from one or two early 1912 announcements of the manufacturers of very high-priced cars that the 1912 season already is drawing to a close. Such an impression is, however, a mistaken one, I am sure. I am familiar in a general way with the plans of most of the manufacturers and I am quite sure that none of the makers of the more popular-priced cars has any intention of announcing 1912 models for some time to come. I believe there will not be any appreciable number of 1912 models delivered before late summer or fall. Hence I would advise anyone who has been thinking of buying a car this spring to go ahead and do so, because, if they wait in the expectation of getting early deliveries of 1912 cars, they probably will miss the very best motoring time of the year. Besides that, I do not look for any radical changes in 1912 models over those of 1911.

## ON YEARLY MODELS

**C**leveland, O.—Editor Motor Age—The prediction made 3 years ago by me to the effect that eventually season models would be discontinued gradually is being fulfilled. The latest recruit to the progressive ranks is the Franklin. The manufacturers of this car have seen clearly the fallacy of juggling with the calendar.

The Stearns company is more firmly entrenched in its position than ever before. There is no reason or justification for announcing 1912 models when 1911 is but a few months old. Nor is this action fair towards the purchaser. If a man buys a 1911 model in March, and 3 weeks later the 1912 model of the same machine is announced, his purchase has depreciated in value fully 25 per cent. Is this in any way fair or just to the man who ties up his money in the car? Now just contrast this with the progressive policy first in-



stituted by the Stearns, and which now is attracting widespread attention and many followers.

We do not make yearly models. When we perfect an improvement it is added to the car at once without any great ceremony. We do not use new features to sell our machine, for every new idea aids in depreciating the value of previously sold machines.

And while I am on this subject just allow me to say this: We do not make external changes on our cars simply to force a demand. When a man buys a Stearns we figure he is a satisfied customer for years to come. We don't change the style of our cars simply to force him to buy a new machine. We figure that our cars are good enough to sell on their merits without endeavoring to create an artificial market.

More makers are beginning to see the wisdom of this policy every year, and I firmly believe that the time is coming when every representative car will drop the season idea. Many have already done so. Stop for a moment and think of the advertising of the leading American cars. When you come right down to it very, very few of them mention the year at all, and in the rather near future the few exceptions will fall in line, too. You may count this as only a prophecy, but bear in mind that it has already been partly fulfilled.—Roy F. York, vice-president F. B. Stearns Co.

#### EARLY ANNOUNCEMENTS

Columbus, Ohio—Editor Motor Age—It is our honest opinion that the motor car manufacturers make a serious mistake in announcing their next year's style in the midst of what should be the busy season with the motor car dealer. This certainly works a great injustice to dealers who have contracted for a quantity of cars and are trying hard to dispose of what they have under contract. It makes a short season's business for them and they are scared to death for fear the manufacturers will announce their 1912 styles before they are ready for this. Why should a method such as this be pursued by the manufacturer? It is not the custom for any other line of industry that we are familiar with to try to curtail their output in this way.

We have been manufacturers of high grade pleasure vehicles for half a century and one of the things we have tried to guard against is putting our next year's line on the market in advance of our competitor. Another thing we never have believed in, and that is, waiting until the end of a season before we feel it is our right to add any improvements that we might discover and which we knew would be of benefit to our car if adopted. To the contrary, whenever we decide there is anything good and desirable that the Firestone-Columbus car does not possess, but by adding this it will improve its sale, we feel it is our right to do so if this is in February, April, June or October.—W. C. Leslie, Columbus Buggy Co.

# The Motorists' Bookman

## Yosemite Trails

THOSE who would know more of the attractions of the Sierras in California, with their towering peaks, lakes of unsurpassed loveliness, and the majestic beauty of the wonderful trees, should read Yosemite Trails. J. Smeadon Smith, the author, in his descriptions of this valley, with its grim rocks, its beautiful lakes and waterfalls, discloses a sympathy for many aspects of nature which attitude enters into his descriptions with a persistency that permeates the reader. The book is the outcome of three journeys of considerable length and is somewhat of a guide book, containing a map and several fine illustrations. His descriptions of the rocks, the valleys, and the forests are excellent, but he waxes eloquent when he reaches the forests of the Sequoias, over which he goes into raptures.

"In them," he says, "we have what seems to be the last survival of the heroic age of the earth, that misty dawn of time when all things, man perhaps included, reached the gigantic in stature and age. I suppose there flows in the Sequoia's mighty veins not the common earth-drawn sap of trees, but some celestial ichor, such, in fact, as would account for their almost immortality. For the Sequoia is all but imperishable, even when overthrown, and trees that can be proved to have lain for 200 or 300 years show no trace of decay. Only two things can destroy them: Fire, and the greed of man."

Mr. Chase makes a protest against the commercial atmosphere that surrounds the visitor as he views these trees, when measurements are given as representing so many feet in lumber, showing them off as mere curiosities and big things, robbing them of their dignity and glory. His protest along these lines is most strenuous.

To read the book, which is filled with a fund of information on the Yosemite region of the great Californian range, creates a desire and a longing for the companionship of the everlasting hills with their woods and forests. Houghton-Mifflin Co., Boston, Price, \$2 net.

## Camp Cookery

"The less a man carries in his pack, the more he must carry in his head. A camper cannot go by recipe alone. It is best for him to carry sound principles in his head, and recipes in his pocket. The simpler the outfit, the more skill it takes to manage it and the more pleasure one gets in his achievements," says Mr. Kephart, the author of Camp Cookery.

Now that the summer is drawing near motorists are planning their summer trips, and this book of camping advice and recipes is a great aid to those intending to camp along the way. It is a very good size, 7 by 4½,

and will easily fit into almost any place in the motor car.

The first chapter is devoted to provisions, and a light and a heavy 2-weeks' ration list is given for four men for both summer and winter camping. A chapter is given over to utensils, with pencil drawings of same. One illustration shows a cooking kit for six which will fit into a space 11 by 12½ inches. All the common utensils of the shops cannot very well be used, as they will not pack to the best advantage, because of the spouts, handles, knobs, etc., but a good deal can be done by substituting covered pails for sauce pans and kettles. A knowledge of fire-building is an important factor, as well as the selection of proper wood—a fire that will suffice for a quick luncheon will not do for baking, and all this is gone into in another chapter. Due attention is paid to the subject of dressing and preserving game and fish; and the reader is told how to cook all sorts of game, even to porcupine and muskrat, which is edible if treated properly; recipes for every conceivable kind of food that the camp outfit, or woods, fields, or streams may provide—from soups to desserts—can be found. The publisher is the Outing Publishing Co., New York,

## Factory Management

Hugo Diemer's "Factory Organization and Administration" is a 318-paged volume intended for the manufacturer, factory manager, superintendent, and department manager. The essays, originally delivered in the form of lectures in engineering colleges, deals with the ethics of factory organization and management. Some of the subject chapters are: Industrial engineering, the economic theory of factory location, planning factory buildings, staff and departmental organization, departmental methods and systems, employment of labor and labor problems, etc.

The industrial engineer—or production engineer, as he is termed today—the man who has to do with plant efficiency—in order to bring about the most efficient and scientific management must, according to the author, be an engineer who knows the manufacturing systems, knows the machinery and tools, knows the materials entering into the makeup of the finished product; he must know every step and process involved in its manufacture; he must know the cost and the causes of its losses. But not only this: He must know his men. It is the duty of such an engineer to surround his men with environments that tend to the welfare and co-operation of the workmen, to better and more efficient workmen; ultimately resulting in a higher standard of factory efficiency and business economics. From the press of McGraw-Hill Book Co., New York. Price, \$4.50 net.



# Legal Lights and Side Lights

## THE NEW ILLINOIS MEASURE

ILLINOIS is to have a new motor law—that is, if Governor Deneen signs it, which it is believed he will. The measure has passed both branches of the legislature and has been passed on to the chief executive for his approval. The new law contains several radical departures over the old one, but on the whole it can be regarded as an improvement in that it benefits the users of cars under 35 horsepower. It also increases the speed limit, makes it possible to punish anyone taking a car without permission, raises the registration fees and cuts down the wheel tax. The measure, which is known as house bill No. 593, was fathered by the Chicago Automobile Club, and that it passed the legislature is largely due to the efforts of Sidney S. Gorham, chairman of the club's legislative committee.

One of the most important features of the bill is that it provides a fund for the improvement of country roads, the registration fees going into that channel. It provides for registration by horsepower, but these fees are moderate in comparison with those that are collected in several other states. If the governor signs it, the law will go into effect July 1. In the interim those who register new cars will pay the present \$2 fee and when the new tags come out they will be given credit for the difference. As to the wheel tax, though, that is a different matter. The old tax prevails until May 1, 1912, as the fees for the present year were due May 1, 1911.

As graded, the registration fees will be \$4 per year for each car under 25 horsepower; \$6 from 25 to 35; \$8 from 35 to 50, and \$10 over 50. Electrics will pay \$5 a year. In paying registration fees, arrangement is made that such a fee shall be pro rated in proportion to the number of months included between the first day of the month in which any such motor vehicle is registered and December 31 next ensuing. No certificate for reregistration will issue for a sum less than the fee required for a calendar year.

The number plates will be furnished free by the state and will be slightly larger than those in use now. The numbers will be at least 6 inches high and the color and shape of the tags will be changed each year. The usual number of lights will be carried, but this bill provides that the tail lamp must be controlled from outside of the car. In other words, it cannot be operated by means of a switch on the dash. This is done in order to prevent violators of the law extinguishing the light to escape detection.

Manufacturers and dealers in gasoline cars pay a registration fee of \$15 a year

and in return get two number plates, duplicates of which may be purchased at \$1 each. This applies only to motor vehicles not operated by a private owner or dealer for private use or hire. In case of an old car being sold the vendor must notify the secretary of state, giving the name of the purchaser and accompanied by a filing fee of \$1. Thereupon the registration seal and number or plate ceases to apply to that particular car and the purchaser must register it the same as in the case of an original registration. In case the vendor purchases a new car of similar horsepower or less, he can retain his old number upon the payment of a fee of \$1. Non-residents are allowed considerable latitude and are given the liberty of the state for a period of 60 days in any one year. The only change that has been made in speed limits is to permit 25 miles an hour in the open country, whereas at the present time 20 miles an hour is the limit.

Although an attempt was made to knock out the wheel tax as applied to pleasure vehicles, the city of Chicago succeeded in defeating the organizers of the movement, but had to make a compromise which considerably reduces this fee in the case of the owners of the average cars—that is, under 35 horsepower. At the present time Chicago taxes according to seating capacity, charging \$12 per year for a two-passenger vehicle and \$20 a year over that. Under the new law the wheel tax on motor cars of 35 horsepower or less cannot be more than \$10, while for more than 35 the maximum tax is placed at \$20. The usual provision permitting park commissioners to name the speed limits is retained.

Instead of chauffeurs paying an annual fee of \$1 for registration and without their being examined, the new law will make an examination necessary and in addition jump the original chauffeurs registration fee to \$5, while the renewals will cost \$3. Non-resident chauffeurs are exempt, provided they are registered in the state from which they come.

The Chicago Automobile Club has succeeded in getting through something for which they long have been fighting, and the legislature passed the clause making it a misdemeanor to take a car without permission of the owner, and also providing punishment for either a chauffeur or a dealer taking or offering any bonus discount or other consideration for the purchase of supplies or parts or work done on the vehicle. The punishment is set at a fine not exceeding \$200 or imprisonment in the county jail for a period not exceeding 6 months, or both, in the discretion of the court.

All money received as registration fees

and for the examination and licensing of chauffeurs lets the cost of procuring registration certificates, seals and number plates go into a road fund which is to be used solely for the permanent improvement of the highways of the state outside of any city, town or village, and is subject to an appropriation by the general assembly for that purpose only. The amount appropriated and declared for such a road fund in any county for the permanent improvement of the highways within its limits in any one year shall be in the same proportion as the amount levied in each county for road and bridge taxes bears to the total amount of the road and bridge tax levied in all the counties of the state.

## FOSS WOULD RAISE TAX

Governor Foss of Massachusetts, who is out to make a record for economy and is looking about for means to tax everything, has sent a message to the legislature in which he advocates, among other things, that high-powered motor cars should be taxed at a higher rate than at present. Just now they are taxed at \$25 a car. The governor has had a lot of experts going over various departments before he approved of the recommendations for appropriations, and he has been scrutinizing everything very closely, as have his experts. Governor Foss in his message to the legislature, while commending the commission, continued his recommendation that it be merged with other commissions into a public utilities board. On the motor question the governor had the following to say:

"I find that the commission expended during the fiscal year ending November 30, 1910, a total slightly in excess of \$1,234,000 and that approximately half of this sum was taken from the loan fund and one-third from the motor vehicle fees fund. The annual legislative appropriations cover expenditures not provided for by the funds. The pending appropriation is for \$261,250. The greater part of the aggregate expense is incurred for the construction and maintenance of highways under contract, and the engineering expenses of the department are slightly under 10 per cent of the cost of all work done under their supervision. Charges of this amount are moderate, but it must be noted that in addition to these charges there are salaries and expenses which constitute an additional 10 per cent over and above the cost of constructing and maintaining highways.

"I believe also that a far larger proportion of the expenses of this commission should be met by increased license fees on high-powered motor vehicles, since these expenses are kept at a high figure



largely because of the excessive wear due to these vehicles."

The gist of the report made to the governor by Clinton H. Scovell, his expert, was favorable to the commission, and it contained the following statement:

"In building and maintaining highways, the function of the commission is to plan the work and supervise its execution. In addition to payments to contractors, there are necessarily large expenses for engineering. In the year ended November 30, 1910, charges for this kind of service amounting to \$35,000 were included in the repairs and maintenance charged to the motor vehicle fees fund, \$73,039.42 for engineering was charged to construction, and \$9,300 for the chief engineer and two assistants was included under the regular salary account. Prior to December 1, 1910, the apportionment of these charges was estimated, as between construction and maintenance, and no apportionment to individual jobs was attempted. Such a practice was open to criticism, especially as the actual result was probably too large a charge to the construction account to be paid for by the issuance of bonds. A system of time sheets is now used which will provide an approximately accurate distribution of engineering expenses according to the time spent on the various classes of engineering work."

#### HOLDS GARAGE OWNER RESPONSIBLE

The circuit court of Milwaukee county in a decision handed down last week holds the owner of a garage responsible for the damages caused to a motor car by illegal use by employees. The case was that of the Fireman's Fund Insurance Co. of California against Dr. J. F. Schreiber, owner of the Schreiber Motor Car Co., of Milwaukee, to recover \$1,366 which the insurance company had paid to Henry Schlesinger for damages to the Schlesinger car while in charge of the Schreiber garage. It appears that employes of Schreiber went on a joy-ride while the car was stored in the Schreiber garage and met with an accident. The insurance company paid the claim of Schlesinger and then sought recourse of Schreiber. The judge instructed the jury to find for the plaintiff. The case will be appealed to the Wisconsin supreme court.

#### NOT NECESSARILY LIABLE

The Massachusetts supreme court in a ruling last week decided that the fact that a defendant in a motor accident suit did not have a license at the time of a collision does not in itself render him liable in damages by making him a trespasser upon the highway, but is merely an evidence of negligence. In this case the superior court judge ruled that the plaintiffs were entitled to damages because the operator of the car did not have a license. Judgments were given against William P. Whitman and Richard P. Whitman, his son, in favor of Timothy C. Bourne and May A. Davis. The accident occurred in August, 1908, and

Richard P. Whitman, aged 19, was driving. His car was on the right side of the road and at a standstill when the plaintiff's car, going 20 miles an hour, struck it. Whitman's license had expired the day before the accident and the renewal did not arrive until 2 days later, the smash occurring in the interim. As a decision had been rendered by the supreme court a year ago that a car without registration was a trespasser upon the highway and its owner is not entitled to collect damages from an accident, the plaintiff may have thought he had a case along similar lines. In the decision the supreme court referred to the other decision and made it plain that it was not analogous to the present instance. Here is the decision written by Chief Justice Knowlton:

The defendants offered to prove that Dr. Harold O. Hunt, who was riding with Richard P. Whitman in the motor car, was the holder of an operator's license, which he had with him at the time of the accident. This evidence was excluded and the judge ruled that possession of a license by another person riding with him afforded him no justification.

After discussing the provisions of the statute reading: "The provisions of this section shall not prevent the operation of motor cars by unlicensed persons, if riding with or accompanied by a licensed chauffeur or operator," the court says:

In a case like the present, where the unlicensed operator was a person of skill and great experience, whose license had expired only the day before and who was expecting another license within a day or so, the supervision and reasonable proximity required by law would not be as close as in ordinary cases, but we are of opinion that the law contemplates at least a knowledge on the part of both persons of the existence of a relation like that of operator without a license, licensed chauffeur or operator accompanying him, in a position to advise or assist with reasonable promptness, if necessary. It has long been established from early times that one who is violating a criminal law cannot recover for an injury to which his criminality was a directly contributing cause.

It is possible to decide this question either way, but we think it more consistent with justice and with the course of the decision elsewhere to hold that in reference to the law of negligence and the rule as to rejection of causes of action that are founded on illegality, an act may be considered in its different aspects in its relation to the cause of action, and if only that part of it which is innocent affects the cause of action, the existence of an illegal element is immaterial. We do not think, under this statute, that one who drives in a sleigh without bells should be treated as a trespasser on the highway, although he is punishable criminally for the failure to have bells attached to the harness, and is liable in damage to any member of the public who suffers a special injury by reason of this failure.

The fact that the number of punishable misdemeanors has multiplied many times in recent years, as the relations of men in business and society have grown complex with the increase of population, is a reason why the violation of a criminal statute of slight importance should not affect one's civil rights, except when this violation, viewed in reference to the element of criminality intended to be punished, has had a direct effect upon his cause of action. Our decisions seem to have been tending towards the adoption of such a rule.

The purpose of the requirement of a license is to secure competency in the operator. If in any case the failure to have a license looking to those conditions that ordinarily accompany the failure to have it is a cause contributing directly to an injury a violator of the law would be legally responsible to another person injured by the failure, or if he is injured himself would be precluded from recovery against another person who negligently contributed to the injury. But we are of opin-

ion that his failure in that respect is only evidence of negligence in reference to his fitness to operate a car and to his skill in the actual management of it, unless in the case of a plaintiff it is shown to be a contributing cause to the injury sued for. We think that the operation of a car without a license, while it is a punishable act, does not render the operator a trespasser on the highway, but that the illegal element in the act is only failure to have a license while operating it, so that if the operation and movement contribute to the accident with which the want of a license has no connection, except as a mere condition, they would not preclude the operator as a plaintiff from recovery.

If the illegal quality of the act had no tendency to cause the accident, the fact that the act is punishable because of the illegality, ought not to preclude one from recovery for lawful results to which, without negligence, the innocent features of the act alone contributed.

After citing the case of Chase vs. New York Central Railroad, decided several months ago, which held that a plaintiff could not recover where the motor car itself was unlicensed, the court says:

We are of opinion that the law of these last cases should not be extended to the provision of the statute requiring every operator to have a personal license to operate the car. The jury should have been instructed that the defendant's failure to have a license was only evidence of his negligence as to the management of the car. The defendant's exceptions are sustained.

#### BLOW AT BAY STATE TRAPS

The most important decision relative to motor cars ever made in Massachusetts was handed down by the supreme court last week, and as there is a similar law on the statute books of many other states, and decisions of one supreme court have weight in another the one just made will be of interest to all motorists. It says in effect that although a motor car may travel faster than the speed mentioned in the law, that of itself is not sufficient evidence of guilt unless the other part of the law relating to driving in a reasonable and proper manner is violated. In other words it is a blow at traps which are worked in summer when small towns reap a harvest.

The usual procedure in court cases in the Bay State was for an official to state that he timed the car and it exceeded the speed limit. That was enough for the judge, who fined the motorist invariably. No thought was given to the other part of the law. Under the ruling now there really is no speed limit because all must depend upon conditions and the regulation speed in the statute may not be approached and yet a man may be guilty by reason of not using due care.

Daniel Cassidy is the man who fought the case and George Ellsworth, counsel for the Automobile Legal Association, of which Cassidy is a member, prosecuted the appeal. Cassidy was charged with overspeeding on Beacon street, Boston, December 2, 1909, and was adjudged guilty because he went 23 miles an hour, and exceptions were taken to the superior court judge's instruction to the jury. These exceptions were upheld and it is upon this that the decision was made. Here is the full report written by Judge Hammond:

The offense described in St. 1909, c. 534, No. 16, and charged in the complaint against the defendant, was that of operating a motor car "at rate of speed greater than was reasonable and proper, having regard to traffic and the use of the way and the safety of the public"; and this was the only offense. Of course the burden was upon the commonwealth to prove his guilt.



The section in question, after creating the offense, goes on to provide that in certain localities therein described "a speed exceeding 20 miles per hour for the distance of a quarter of a mile" shall be prima facie evidence of a rate of speed greater than is reasonable and proper, and contains a similar provision as to a rate of speed "exceeding 15 miles per hour for a distance of  $\frac{1}{2}$  mile." Shortly stated the statute forbids the running of a motor car at a rate of speed greater than is reasonable and proper, and declares what rate of speed shall be prima facie evidence of the rate forbidden. It may be remarked in passing that the earlier statutes expressly prohibited the running of a motor car at a rate of speed exceeding a certain number of miles per hour therein specified; St. 1902, c. 315, No. 1; St. 1903, c. 473, No. 8, but a different standard of speed was adopted in St. 1906, c. 412, reenacted in the present statute.

The real question in all these cases now is whether the speed is greater than was reasonable and proper, having regard to traffic and the use of the way and the safety of the public, the burden being on the commonwealth to show that it was. If the speed was such as to make out a prima facie case for the prosecution, still the burden does not change. The jury is to give due weight to the prima facie case taken in connection with the other circumstances disclosed by the testimony whether coming from witnesses called by the government or the defendant, and if it is satisfied that the speed is greater than was reasonable and proper, having regard to traffic and the use of the way and safety of the public, it should convict the defendant; otherwise it should acquit him. And hence in some cases a defendant may be convicted even if he has not exceeded the rate named in the prima facie clauses of the statute, and in some he may be acquitted even though he may have exceeded it.

The first and third instructions requested by the defendant contained a correct statement of the law so far as respected the offense with which he was charged, and the defendant was entitled to have them given in substance. The court refused to give them, but upon this point after stating that there was no controversy but that the place where the accident occurred was in the thickly settled portion of the city of Boston, instructed the jury as follows: "If speed greater than 15 miles an hour is maintained in such a part of the city, then the person is guilty of an offense—unless what? That is to say, if the government has made that out, it has made out its case—unless what? Unless the condition of the time required a greater speed. Now, is there any evidence here showing that a greater speed would be required? You can see that a rate of speed might be maintained under certain circumstances which would be essential for the safety of the people in the automobile, or for the safety of other people in the street. Conditions might arise under which a very high rate of speed would necessarily be maintained for a short time, or short distance, to avoid danger. Unless something of that kind appears a rate higher than 15 miles an hour under this statute is an offense. If you are satisfied from the evidence that the speed exceeded 15 miles an hour, you must find a verdict for the government, unless you are satisfied there were special reasons existing at the time which required a greater speed."

And again, near the end of the charge the following language is used: "The question is essentially this simple thing: Are you satisfied by this evidence beyond a reasonable doubt that the defendant was driving his car at a rate of speed exceeding 15 miles per hour in a thickly settled part of the city of Boston where there were intersecting ways and for a distance of  $\frac{1}{2}$  mile? If he was, and there were no circumstances for the safety of the public or traffic in the road, or special conditions requiring a greater rate of speed, you should return a verdict of guilty. If you are not satisfied of that beyond a reasonable doubt, or are satisfied that there were special circumstances requiring a higher rate of speed, then he is entitled to a verdict of not guilty."

It is manifest that these instructions are not in accordance with the rulings requested by the defendant, which, as we have said, correctly stated the law. Upon this point the defendant's exceptions must be sustained.

The second instruction was rightly refused. The first section of St. 1909, c. 354, contains this provision: "Intersecting way" shall mean any way which joins another at an angle, whether or not it crosses the other." This provision is found in the section which defines the meanings of various terms thereafter used in the subsequent parts of the statute and notwithstanding the provisions of the twenty-third section of the statute, must be held to be applicable to the sixteenth section whenever the latter went into effect.

#### A CANADIAN CASE

A curious case was heard recently in Montreal by Justice Delormier against the town of Dorval, Quebec, as a result of the efforts of that municipality to keep

down dust and improve its roads by sprinkling them with an oil composition. A carter named A. Dagenais entered suit against the town to recover damages which he alleged had been caused his horses and rigs by this composition. Dagenais claimed that when this composition was applied to the roads, before it dried it stuck to his horses' feet and legs, causing considerable injury to them. Also that the stuff splashed onto his rigs, burning holes in the upholstery and eating the varnish and paint off to such an extent that he had been caused considerable expense fixing them up again.

In defense it was claimed that if Dagenais' horses had bad feet it was because they were in bad shape previously, while if he had taken good care of his rigs he would have prevented any damages.

Another carter was called for the defense and stated that he had not suffered any loss by the composition. He, however, stated that when the stuff was put on the roads he took a rag with him and whenever his rig stopped he wiped it off, as well as his horses' feet.

#### UTAH HAS ROAD LAW

The recent act of the Utah legislature providing road bonds has now become a law. This act provides for the issue and disposal of state bonds and the appropriation of the proceeds of the sale thereof for the purpose of building roads and bridges and apportioning same among the several counties of the state, under the direction of the state road commission, and the appointment of a secretary for the commission. By this act the state board of loan commissioners is authorized to dispose of bonds to the extent of \$260,000, bearing interest at 4 per cent.

This is regarded as a windfall by all who are interested in the roads of the state, and is one of the many pledges which the legislature lived up to. In furtherance of this move for good roads, the use of convict labor was approved and \$20,000 per annum appropriated for the maintenance of a force of convicts at all times for road work.

#### BALTIMORE IS AROUSED

The recent killing of Rev. J. Houston Eccleston, a prominent Episcopal clergyman, and a number of other well-known Baltimoreans and the narrow escape of Cardinal Gibbons in consequence of reckless driving within the city limits of Baltimore, have aroused the city officials, members of the Automobile Club of Maryland and Motor Vehicle Commissioner George. Motor Vehicle Commissioner George has decided to ask the next legislature to make drastic changes in the present law. He will ask that upon certain streets no motor cars will be permitted to stand for more than a certain length of

time. On other narrow thoroughfares he will request legislation that will prohibit from moving more than one way. He also will ask for drastic regulations for punishing the speeders, according to his statement. Another nuisance the commissioner wants to abate is smoking motor cars in the city streets. Still another is to provide a heavy penalty for motorists who drive past street cars while passengers are alighting.

The Automobile Club of Maryland in order to assist in discouraging speeding appropriated \$500 at its last meeting for the employment of a special official to patrol the streets of Baltimore on a motor cycle and reports to the officers of the club every infraction of the law. The club intends to have this officer commissioned by the proper authorities and have him endowed with the power to make and order arrests of violators. The club also intends to investigate the use of dealers' license on pleasure cars. Several such cases have been brought to the club's attention.

#### PENN BILLS PRACTICALLY BEATEN

The Automobile Club of Pittsburgh in connection with the Pennsylvania Motor Federation has shown its hand at Harrisburg in killing adverse legislation. This was in the shape of three bills, the first one known as the McNichol-Howard bill proposed to increase the motor license fees from the present rates of \$5, \$10 and \$15 to \$25, \$50 and \$75. Although no action has been taken to vote this bill down it is a pretty safe guess that the bitter opposition of the federation backed by certain very forcible influences from western Pennsylvania which have been stirred up against it by the Automobile Club of Pittsburgh is going to be allowed to die unnoticed in the final hours of this legislature.

The second bill proposes to tax cars as personal property. This measure was so uniformly odious to the motor interests of every state that every conscientious legislator was prevailed upon to vote against it and it was accordingly killed. The third bill required the license fee of every owner in the state to be 1 per cent of the cost of his car. This measure also has been killed. The Automobile Clubs of Pittsburgh, through its secretary, Paul C. Woolf, sent three sets of telegrams to Allegheny county legislators and also scores of letters. This contributed in no small way to the killing of these three measures.

#### RECONSIDERING BADGER BILL

The Wisconsin assembly has voted to reconsider the Plowman bill regulating the operation of motor vehicles, which was killed recently and which is now referred to the committee. The bill prohibits any person under 18 years, or intoxicated persons, from driving cars; makes the penalty for a second or subsequent violation of the speed laws punishable by a fine of \$500, and supplants the 12-mile-an-hour limit in cities by a provision prohibiting reckless driving.







# The Motor Car Repair Shop

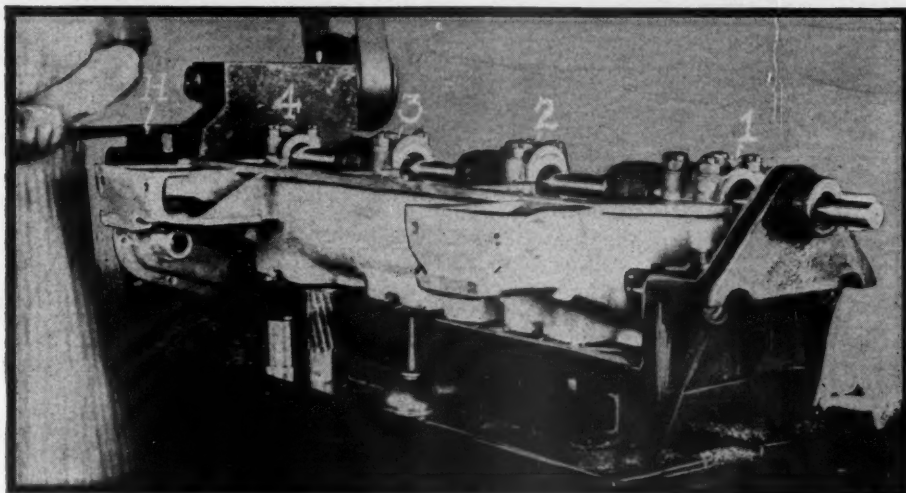


FIG. 1—THOMAS METHOD OF REAMING FOUR CRANKSHAFT BEARINGS AT ONCE

IT IS a well-known fact that a reputation is one of the greatest aids to the sale of a motor car; it also is well known that competition is the quickest and most efficient means of advertising and establishing a reputation; but only a few of the most enterprising motor car manufacturers are realizing the fact that to get a reputation is one thing and to keep it is another. There is only one way to maintain a reputation—advertising; but there are two great methods of advertisement: one of these is by means of the popular publications, and the other by the influence of the motorist himself. Now, whereas most motor car manufacturers advertise through the medium of the press directly, or indirectly by means of competition; only a few take advantage of the vast influence that one motorist has to encourage or discourage prospective purchases and effect their choice.

## Service Departments

The way in which the enterprising few have been taking advantage of the latter influence has been by installing and improving service departments. The service department of a motor car factory is that division which is devoted to the welfare of the car in the hands of the customer. Anything that the factory may do to increase the satisfaction of the customer with his car, helps to make that customer a booster for the product; and the greater the efficiency of the service department, the greater its influence. It is the duty of the service department to use every possible means to educate the motorist in the care of his car so that it will not suffer for the lack of proper attention; and to provide every possible means to facilitate its repair and maintenance.

It is the policy of the shop department of Motor Age to work hand-in-hand with the service departments of the various motor factories in an effort to promote their

development; and an endeavor is made to illustrate and describe anything new and clever in the way of equipment and shop kinks that will aid the motorist, the chauffeur or the repairman.

## A Labor-Saving Device

The motors which are used in many of the prominent makes of motor cars are now so standardized that special machines and tools can be used to a very good advantage. In Fig. 1 is shown a means employed in the Thomas factory for reaming out an entire set of motor crankshaft bearings simultaneously in a very short time; this machine might well be adopted in the repair departments of the larger motor car agencies. It com-

prises a large cast-iron jig adapted to receive that portion of the motor crankcase which contains the crankshaft bearings and a means of revolving and driving a special mandrel with four reamers upon it through these bearing bushings 1, 2, 3 and 4. This saves hours of scraping.

## Illuminating the Washrack

As most cars are washed and polished at night, it is necessary that a washrack be properly illuminated if a good washing job is to be obtained. There are many schemes in use by means of which fairly good illumination of the washrack has been obtained, but most of these have their disadvantages. It is necessary to have lights than can be arranged near the floor so that the washer may see the dirt that clings to the running gear. Some garages have clusters arranged on portable and adjustable stands. Others simply have drop lights which are carried around the car and held in one hand of the workman while the other is holding his sponge.

One of the best arrangements now in use is shown in Fig. 2, the photograph having been taken in an eastern motor car agency. There is on either side of the washrack, suspended on cords and pulleys from the ceiling, a piece of waterproof metal conduit, 2 or 3 feet longer than the overall length of a motor car; and from this conduit depend a series of electric globes with reflectors and protectors attached. By means of the cords upon which these conduits are hung it is possible to lower the conduits almost to the floor and adjust them at any height desired.

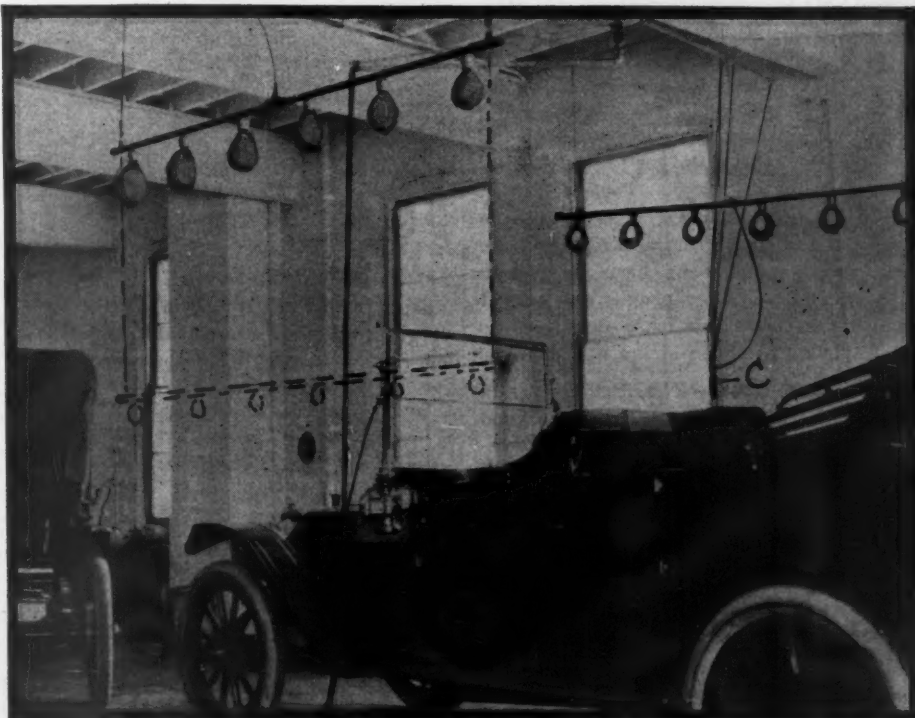


FIG. 2—SHOWING HOW AN EASTERN AGENCY ILLUMINATES THE WASHRACK

# From the Four Winds

**GARFORD a Pathfinder**—A Garford car has been chosen as the pathfinding car for the Cleveland News reliability run, which will be held July 17, 18, 19.

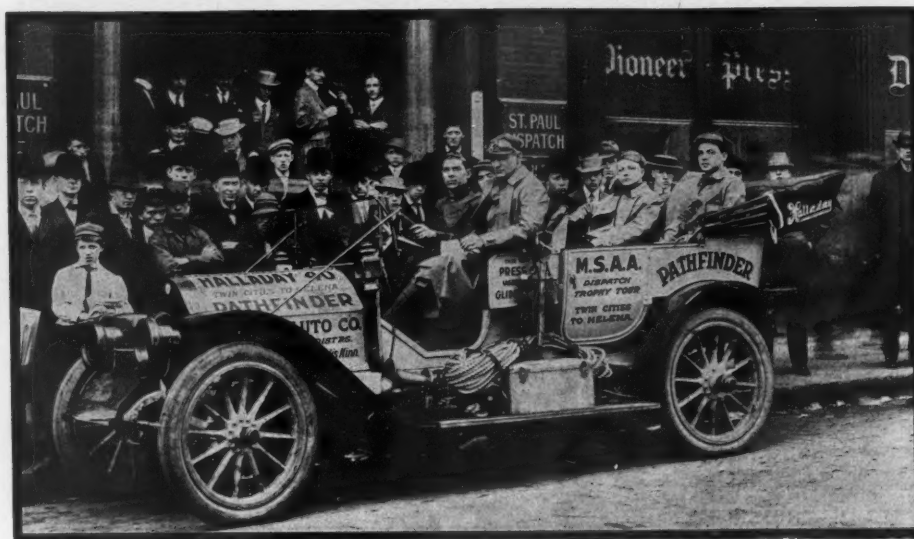
**Outing for Clevelanders**—The Cleveland Automobile Club will go to Bass lake Sunday for its first run of the season. The dealer with the most cars in the run will receive prizes donated by the local accessory houses. A baseball game has been arranged between the forces of the United Motor Cleveland Co. and the Olds-Oakland Co. for that day.

**Laying Out a Route**—Four motor cars filled with newspaper men and members of the Arcadia Country Club made the trip from St. Louis to Arcadia, Mo., last week, to select a route for the reliability run of the Missouri Automobile Association, to be held in June. The roads were found in bad condition, but \$30,000 has been raised along the route for their improvement, and work has already begun.

**Ohio's Quarterly Report**—The report of the state registrar of motor cars of Ohio for the quarter ending May 15 shows that 15,033 owners registered in that time, paying fees amounting to \$74,185. Chauffeurs to the number of 1,626 were registered and manufacturers and dealers to the number of 179 were given number plates. The total revenue of the department for the quarter was \$80,221.30. May 15, 33,478 motor cars had been registered by the department since the first of the year, which was 9,860 more than was registered May 15, 1910.

**Gets Cars for Orphans**—Chester I. Campbell, of the Boston Automobile Dealers' Association, who has charge of the outing for blind, crippled and orphaned children, which takes place Monday, June 7, has already received pledges of more than 250 cars, and he expects to get as many more before the day arrives. Thomas Burke, one of the Olympic champions, is to have charge of the sports for the drivers of the cars, and a number of firms have contributed prizes. Many people who cannot furnish cars have sent cash donations to Mr. Campbell to aid in hiring machines.

**After Good Roads**—The first county in the state of Maine to organize a good roads association is Aroostook, the northernmost county in the state. At Houlton, Maine, a meeting of the prominent citizens of the county was held under the auspices of the Houlton chamber of commerce. G. E. Pennypacker, Jr., secretary of the American Association of Highway Improvement, of Washington, D. C., was present and laid out the plan of organization. The association starts with 100 members, mostly farmers. Officers were elected and a constitution adopted. The



HALLADAY PATHFINDING MINNEAPOLIS-HELENA ROUTE

objects of the association are to work together for producing good roads by having a number of the towns procure the services of a skilled road engineer.

**Award Road Contract**—The county commissioners of Lucas county, Ohio, have awarded an issue of \$173,850 of road repair bonds to the Citizens' Safe Deposit and Trust Co. of Toledo, which offered a premium of \$9,602.99 and accrued interest. The bonds bear 4½ per cent. This large sum of money will be used to keep Lucas county roads in repair during 1911 and 1912.

**Hill-Climb Abandoned**—The proposed hill-climb of the Quaker City Motor Club of Philadelphia, scheduled to take place on Saturday, June 24, has been declared off. The principal reasons assigned are the fact that there are no hills worthy the name in or adjacent to Philadelphia and an overabundance of events to be conducted by the club about that time, the annual orphans' outing to Willow Grove and an electric run to take place on June 7 and 10 respectively.

**New Club at Rockford**—Through the influence of adding to their membership a large number of prominent business men of the city, bringing into their ranks a total of 300 members, the Motorists' Association of Rockford, Ill., has recently had a city traffic ordinance passed through the city council. This ordinance enforces the right and left driving rules for all vehicles. An amendment is now being prepared for the establishment of the tail light rules for the protection of all classes of vehicles. The association has recently added a regular attorney to its list of officers, who will see that all legislation is properly handled and the dues of the association will go to maintain this office. The question of good roads is being taken

up and the Motorists' Association is using every effort to get the road commissioners in Winnebago county into line so that by fall the roads in the county will be better suited for motoring.

**Big Parade in Toledo**—A motor parade was one of the chief features at the celebration of the twenty-ninth anniversary of the organization of the Toledo Traveling Men's Association last Saturday. More than 125 cars were in line, the procession covering a route of several miles.

**Taking French Census**—After taking a census of all motor vehicles in France, the military authorities are now occupied in examining the different units in order to determine their possible value in case of war. The jury, composed of military officers and experts from the Automobile Club of France, fix their headquarters around a deal table placed on the sidewalk outside one of the numerous barracks near the city fortifications. The cars, comprising elegant limousines, racing cars carrying a rough tester's body, lumbering trucks, light runabouts, or old-stagers built when the industry was young, successively pass before them. Each car is examined, the driver, if a Frenchman and fit for military service, is interrogated, and the vehicle either entered as fit for service, refused altogether and given a certificate liberating it from further calls, or adjourned. Practically all modern cars, built in 1907 or the following years, are found fit for service in case of war. Those of an earlier date are only accepted if they are in really good condition. Touring cars which have been transformed into commercial vehicles are not generally wanted, for they have not sufficient load capacity to suit the service department and are not fast enough for reconnoitering. The army,



on the other hand, appears to be afraid of racers, for most cars developing more than 60 horsepower are refused as unfit for military service. Taxicabs are not examined, nor are the Paris omnibuses, but all commercial vehicles are inspected and the more modern ones immediately enrolled for service. When the work of examining has been fully completed the army will know exactly to what extent the motor cars of France can be relied upon in case of war.

**Eau Claire Election**—W. K. Coffin was reelected president of the Eau Claire Automobile Club of Eau Claire, Wis., at the annual meeting. S. G. Moon was elected vice-president; Charles McArthur, secretary and treasurer; directors, W. H. Hobbs, G. R. Wood, S. R. Davis. The club decided to hold its annual meetings hereafter in January in order to map out in advance a comprehensive program of action on legislation, highway improvement and general club matters. The Eau Claire club has done wonders in the matter of good roads and has made boulevards out of corduroy and logging roads of years gone by.

**Has a Good Effect**—Several clubs are being formed in various Wisconsin cities and counties under the influence of the second annual reliability tour of the Wisconsin State A. A., July 17 to 22. At Marinette, the first night stop, motorists have effected a temporary organization and will be ready for business by July 17. Shawano and Antigo have been getting busy since the Overland pathfinder with Pilot Moore, president of the association, passed on the reblazing tour last week. A county association has been organized at Menomonie, Wis., to include all of Dunn county, in the northwestern part of the state. Calumet county motorists are organizing a club at Chilton, on the east shore of Lake Winnebago, opposite Oshkosh. There is a fine road around this

lake, which is the largest inland body of water in the west, punctuated by several large cities, notably Fond du Lac, Oshkosh, Neenah, Menasha, Appleton.

**Good News for Motorists**—The Milwaukee county board of supervisors, much to the joy and pleasure of motorists of Milwaukee and the surrounding country, has announced finally that the new \$1,500,000 Grand avenue viaduct, connecting the city with the western world over the Menominee valley, will be opened for traffic June 1. The viaduct has been under construction since October, 1907, and contractors were changed several times.

**New Checking System**—A new checking system for motor cars was put in effect in Windsor, Ont., the past week by the Canadian customs department, and hereafter American machines and their drivers will be checked into Canada in much the same way as baggage is checked on a railroad train. Should the car not return the same day it must be bonded, otherwise it may be seized for violation of customs regulations.

**Franklin Gets a Record**—The previous record of 19 hours 30 minutes for driving a car from Oklahoma City to Kansas City, a distance of 450½ miles, was lowered to 16 hours 30 minutes by Ray Colcord, who started in a Franklin from Oklahoma City at midnight Sunday and arrived at Kansas City Monday at 4:30 p. m. One hour and a half of the total was lost on account of an accident to the gasoline tank. The average speed traveled was in excess of 30 miles an hour.

**Change in Route**—Although the route for the second annual reliability tour of the Wisconsin State A. A. has not entirely been reblazed, Pathfinder M. C. Moore, president of the association, has definitely decided on one change for the second day's run, which will take the tourists through the Keshena Indian reservation, one of

the most picturesque and interesting places in the middle west. The Keshena reserve is part of the great Menominee Indian reservation in northeastern Wisconsin and most of it is covered with primeval forest, cut up by pretty trout streams and numerous high falls and rapids. The tour will begin July 17 and end July 22, starting and finishing at Milwaukee, and already there are indications of an entry list much larger than last year.

**Membership Campaign On**—The Automobile Club of Pittsburg is conducting one of the best membership campaigns this year that it has ever started. It now has 450 regular members and has set its mark at 1,000. The number of cars used in Allegheny county justifies the prediction that this number is by no means an immense total to reach, and every effort will be made to come well up to it this year. The club is directing its energy this summer chiefly to improving the Pittsburg city streets.

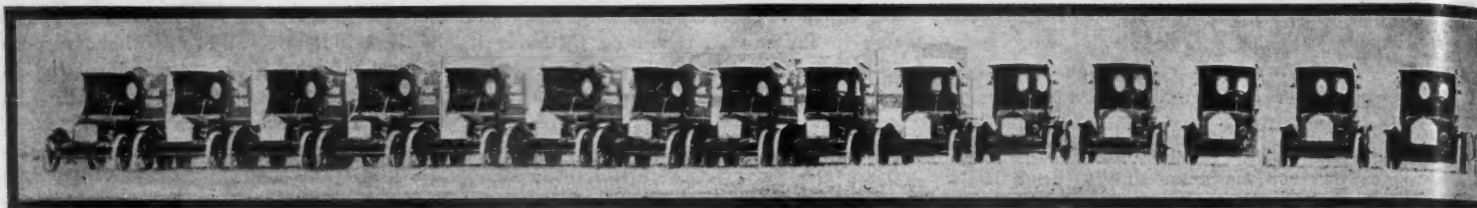
**Improving a Route**—June 22 to 25, inclusive, the Intermountain Good Roads Association will convene at Pocatello, Idaho. Elaborate plans are in process for sample road-building, machinery exhibits, etc. Idaho is making rapid progress in its road-building, and notable among the good things is the proposed macadamizing of the sand strip between Pocatello and Ross' Fork. The sum of \$30,000 will be spent in macadamizing this 6 miles of bad road, which will make traveling easy between the Portneuf and the great Snake river region through to Montana.

**Badger Recruit**—The latest addition to the ranks of the Wisconsin State Automobile Association is the Lancaster Automobile Club, of Lancaster, Wis., organized recently. Officers have been elected as follows: President, W. J. Bailie; vice-president, Frank Schreiner; secretary and treasurer, L. A. Clark. Lancaster is in the southwestern Wisconsin lead and zinc mining district and proposes to run the waste of the mines to good purpose in highway improvement. The stuff may be had for almost nothing, and has been declared by geologists and good roads experts as superior to any other material for building and surfacing roads.

**Canadians Hold Election**—The seventh annual meeting of the Automobile and Aero Club of Canada took place last week and at this meeting it was decided to vigorously prosecute the campaign for good roads throughout the province of Quebec. F. H. Anson was reelected president, L. C. Rivard vice-president, and George McNamee secretary-treasurer. The directorate is as follows: L. E. Goffrion, George Smith, Clarence F. Smith, Howard Pillow, Duncan McDonald, A. J. Dawes, Eugene Tarte and A. L. Caron. The club membership is now 250, whereas a year ago it was 116. It is quite likely that within a short time the club will acquire a country club house.



ABBOTT-DETROIT, PATHFINDER OF WOLVERINES' AFFILIATION TOUR



THIRTY BRUSH RUNABOUTS RECENTLY PURCHASED

## MASSACHUSETTS' PROGRESS

THE development of the commercial field in Massachusetts has been extraordinarily rapid within the past few months. There was some evidence of what it would be as the time approached for the show last March, but after that the business received an impetus which put it upon a firm basis.

Last year there were fewer than 700 commercial vehicles registered with the highway commission. It was not expected that there would be a great number and so no special provision was made for them. This year the commission decided that it would be a good plan to have each motor truck or wagon registered distinctly and so a letter B prefaces the number.

Up to May 20 there were 1,308 commercial vehicles registered. These figures make an interesting comparison. If the total number registered last year is accounted for there remains about as many more new ones, showing a gain of 100 per cent. This is all the more impressive when it is considered that less than 5 months of 1911 have passed.

In Boston alone the number of dealers now selling motor trucks have more than doubled over a year ago. And as they are selling machines right along this means there will be a very large total when the year ends. Some of the dealers are now behind in their orders and the

## In the Realm of the

trouble seems to be not in selling the trucks but in getting them.

One dealer has sold seven trucks from blue prints alone. Another dealer has thirty orders now to be filled. Another dealer has been making deliveries each week regularly and there does not seem to be any decrease in the orders. The demand does not call for any particular type either, which shows that the merchants are really educated up to the point that they are willing to use motor vehicles. While the greater number are being sold in eastern Massachusetts, yet many are being purchased in the middle and western sections of the state.

One of the most important moves in the development of the commercial situation was the amalgamation of the motor truck associations that were formed early in the year. What first promised to be a fight was turned into a love feast by using judgment and now the Boston Commercial Vehicle Dealers' Association is going to be a big factor in upbuilding the truck business. The members are all dealers who have had experience in selling motor products, and from among them have been chosen officers who are aggressive. Work-

ing with the other association, comprising pleasure car dealers, friction has been wiped out and the two lines will be marketed thoroughly.

One of the first problems taken up by the truck dealers' association was the planning of a run of some kind. This will take place in June and the dealers will have a chance to accompany the trucks each day and get back in the afternoon to attend to any business that may have come in while absent.

Three days will be devoted to the run and different sections will be visited. Radiating from Boston will prove a better plan than if the run was continuous and did not get back to the starting point until the end of the third day. The general rules have been completed and entry blanks are now out. As the event will be conducted by the organization and no aid has been accepted from any source outside its own ranks it will start free and untrammelled.

Another matter the association has taken up is that of seeing that those who purchase trucks will secure reliable operators. The dealers realize that the day has gone by when their interest ceased when they sold a man a truck and now a plan will be evolved to train men to drive and care for the machines. The problem of a separate show from trucks is being considered, too.

That the era of motor trucks is nearer than many people realize is shown by the reports of officials who have been called upon to pass upon traffic. A few days ago the joint board of railroad and transit commissioners made its report as required by the legislature on the advisability of constructing a teaming tunnel to East Boston.

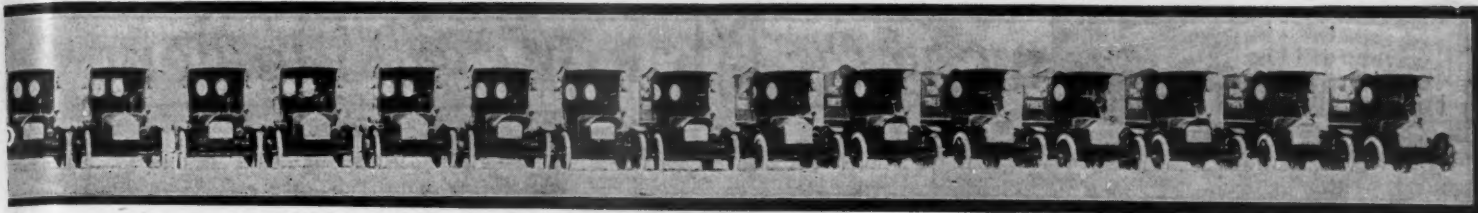
It was stated in the report that at present a tunnel would not be advisable. There was a paragraph at the end, however, which shows that the officials realize what is coming. After explaining that a tunnel at present would have to use long approaches, and in winter snow would be necessary on these runs, etc., the report said:

"This matter may, however, properly be reviewed when mechanical power is more generally substituted for animal power, since such substitution will do away with some of the existing obstacles



TRUCK USED BY COX BOTTLING CO., OF WICHITA, KAS., WHICH DOES WORK OF THREE HORSE-DRAWN RIGS





BY THE FISK RUBBER CO. FOR USE OF ITS SALESMEN

## Commercial Car

to successful operation, and will render possible shorter and less expensive approaches with steeper grades."

That is certainly worth consideration. With motor vehicles in general use the approaches would not matter, and instead of having them stretch out into the heart of the city to make the grades easy they could begin at the water front on either side.

Not so very long ago the chamber of commerce took up the question of making changes along Atlantic avenue so motor vehicles could be run under the elevated structure and be given practically a free rein, as it were. This would mean the speedy hauling of freight from the two big railroad terminals.

That the field for motor trucks is a big one is shown by the statistics giving the number of vehicles transported across the harbor on the ferries every year. In 1905 there were 899,060 vehicles ferried across; 1906, 905,367; 1908, 904,298; 1908, 882,296; 1909, 934,653; 1910, 934,291. The daily average of teams using the ferries has been 2,559. It will be interesting to compare the figures of the present with those of a few years later and note the change with the increase of trucks. All these things, together with the noticeable increase of vehicles about the streets, is a clear evidence that the era of the commercial vehicle in Massachusetts has already begun.

### CANADIANS WILL USE CARS

The postoffice department of Ottawa, Ont., has notified the Ottawa Electric Railway that it will not renew the contract for carriage of mails to and from the trains, which expires on September 1. At present the company receives \$8,000 per year and has asked \$15,000 on a new contract. The postoffice will henceforth utilize motor cars for this work.

### TRUCK MAKING IN ATLANTA

If all the plans now considered for the establishing of motor truck plants in Atlanta work out as advertised, Atlanta will become the very center of the southern truck-making industry. One concern, the Van Winkle Gin and Machinery Co., one of the largest makers of ginning machinery in the country, already has begun to place motor trucks on the market. Other companies that have reached at

least the stock selling stage are the Consolidated Motor Car Co., which is to make the Myers, and the DeLoach Co., which plans to put out a friction-drive machine.

### REO CARRIES BIG LOAD

Captain H. D. Ryus with a Reo motor truck recently drove from Los Angeles to San Diego with a load which consisted of a gross tonnage of 3,700 pounds, of which there were 1,500 pounds of cement. The distance for the trip was 142 miles, which was covered in 11 hours 55 minutes. Among the towns passed through were Santa Ana, Capistrano, Oceanside and San Diego. Many steep hills and rough stretches of road were encountered. The trip was made without making an adjustment or repair. Only 9 gallons of gasoline was used while not a drop of water was taken on en route. No stop was made except for meals. Captain Ryus

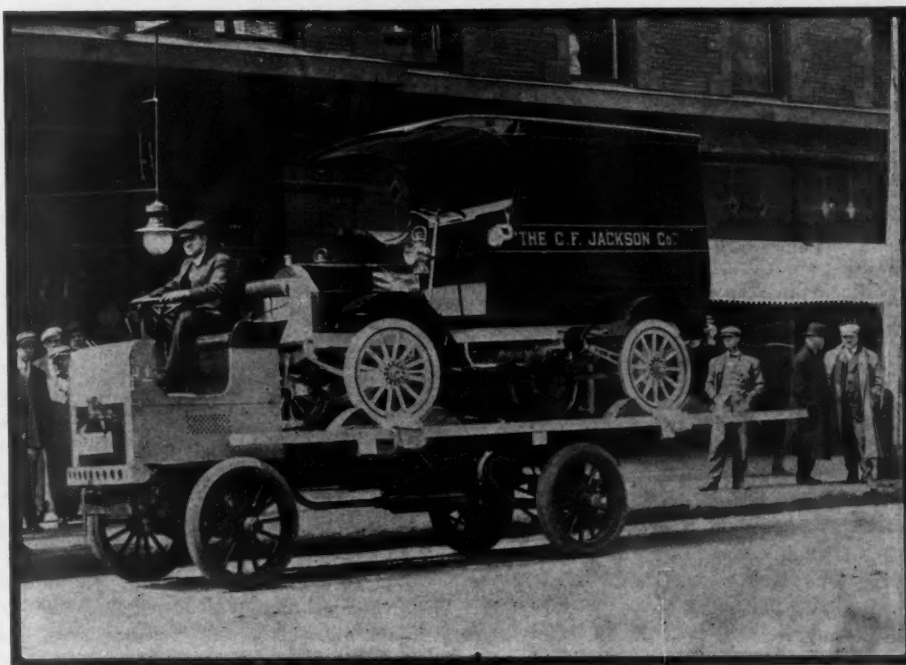
### TRUCK TRAIL BLAZED

While an official route to be followed by the trucks in the commercial vehicle display under the auspices of the Philadelphia Inquirer, on Thursday, June 8, has not as yet been determined, the path-finding Kisselkar was driven over a ten-

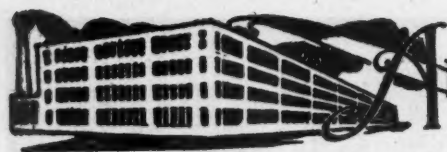
tative route Saturday. Starting from in front of the Inquirer building, Eleventh and Market streets, the itinerary lay: East on Market to Front street, north on Front to Arch, west on Arch to Eleventh, north on Eleventh to Ridge avenue, along the Ridge to Broad, south on Broad to Chestnut, east on Chestnut to Front, south on Front to Walnut, west on Walnut to Sixteenth, north on Sixteenth to Market, west on Market to Fifty-second street, to Lancaster avenue. Providing this point is finally selected as the terminus of the run in the city proper, the route will then continue to Narberth, where the participating vehicles will be placed on exhibition. The route to Fifty-second and Lancaster avenue followed is approximately 11 miles and the average running time 6½ miles an hour.

### FAVORS A DEMONSTRATION

If the Boston Commercial Vehicle Dealers' Association holds its run in June, as now proposed, it may take the form of a demonstration rather than a contest. Since they found out that under the rules it is proposed to exact \$10 from every vehicle that takes part in a contest and turn this over to the A. A. A., some of the dealers say they will absolutely refuse to enter. They do not mind paying an entrance fee to their own organization, but when it comes to turning over such a large amount to the A. A. A. they draw the line.



MODEL M AMERICAN 2-TON TRUCK CARRYING A MODEL A 1-TON EWING DELIVERY WAGON



# Among the Makers and Dealers

**KNOX Adding to Plant**—The Knox Automobile Co., of Springfield, Mass., has just completed a six-story addition of 40,000 square feet to its already large factory.

**Installation Agency Opened**—The Apple Electric Co., of Dayton, Ohio, has opened a branch store and installation agency at 330 North Illinois street, Indianapolis, Ind. The agency is in charge of Messrs. Montfort and Brown.

**New Dynamo Factory**—The Gray & Davis Co. is putting up a building in Boston constructed of reinforced concrete and steel, which will be used for manufacturing dynamos in connection with the concern's new lighting system.

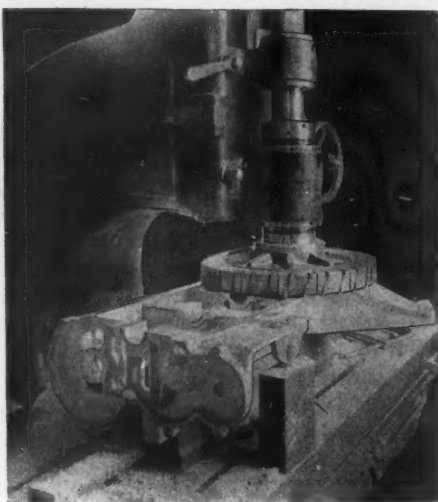
**Widman Is Named**—A. U. Widman has been appointed treasurer and assistant general manager of the Autoparts Mfg. Co., of Detroit. The company has moved into its new factory, which gives 60,000 square feet of floor space additional to the old factory.

**Day Succeeds Gilson**—W. L. Day, the new sales manager of the Mitchell-Lewis Motor Co., of Racine, Wis., was for several years general manager of the Parlin & Orendorff Co., of Kansas City. Mr. Day succeeds James W. Gilson, now assistant secretary of the Racine company.

**Dowse Federal President**—B. C. Dowse, who recently resigned as president of the G. & J. Tire Co., will be the guiding spirit of the new Federal Rubber Mfg. Co., which has a capital stock of \$1,000,000, fully subscribed, and he has already surrounded himself with some of the best known men in the rubber industry.

**Fire in Winnipeg**—Forty cars aggregating in value something like \$150,000, a building valued at \$60,000 and 1,400 gallons of gasoline went up in flames in a spectacular fire when the Central garage, of Winnipeg, Man., caught fire May 18 and was totally destroyed with its contents. The garage had an extra heavy supply of gasoline on hand, a team being at the tanks delivering when the fire broke out.

**New Stewart Speedometer Branch**—The business coming from the northwest has necessitated the Stewart & Clark Mfg. Co. opening a branch office in Minneapolis to take care of it. This branch will care for all business which originates in Minneapolis and St. Paul, and will be in charge of Alfred H. Champlin, who has traveled this territory for the past year. It has been found necessary to reduce the territories covered by the old offices so that they can see their trade oftener, which has made necessary the addition to the traveling force of three new men: Thomas



**MILLING OVERLAND CRANKCASE**

Reducing the cost of manufacture is one of the biggest features in the production of a medium-priced car. The above illustration shows one method of reducing the cost of manufacture. The large-diameter horizontal wheel fitted with several cutting knives around its circumference is what is known in factory parlance as a milling cutter. Beneath it is an aluminum crankcase. The rotating wheel is in the act of milling or making smooth the lower face of the top part of the crankcase. The cutting wheel is of large enough diameter to extend from one side of the casting to another so that one sweep of the cutting wheel from one end of the casting to the other completes the job. Should one part of the casting face have to be left higher than another part it would mean two milling processes, which would double that part of the cost of manufacture; and it is by simplifying castings in this way that cost reduction is possible.

J. Snelling, who will cover Iowa and Minnesota; J. B. Suess, formerly at the Michigan avenue office, who will now travel all of Illinois and Wisconsin, and J. J. Hildebrecht, formerly at the factory, who will travel Pennsylvania and New Jersey.

**Symmonds Going to Coast**—Robert Symmonds, for 11 years general superintendent of the Thomas B. Jeffery Co., of Kenosha, Wis., maker of the Rambler cars, has resigned and plans to take a long rest. Mr. Symmonds plans later to seek the California climate and will embark in the garage and agency business on the Pacific coast.

**Firestone Additions**—The new factories of the Firestone Tire and Rubber Co., located half a mile southeast of the company's present plant at Akron, O., are very near completion. It was announced recently that the office force would be removed to the new buildings not later than June 1, and that the factory forces would follow soon afterward, the date of the general removal depending on the time required for the installation of machinery. The entire old factory of the Firestone company will be used for the manufacture of rims. The company now

employs more than 1,000 people and plans are to triple the plant's capacity within a year and increase the number employed to about 3,000.

**Ohio Capital Increased**—Owing to the increase in the business of the Ohio Motor Car Co. it has applied to the secretary of state for an increase of capital to \$450,000, \$250,000 being common stock and \$200,000 preferred stock.

**Using a Night Shift**—The Wisconsin Motor Mfg. Co., of Milwaukee, Wis., which recently moved to its new \$150,000 plant at West Allis, near Milwaukee, has been obliged to put on a full night shift, owing to the large number of orders.

**Tent Show Dates Selected**—The show committee of the St. Louis Manufacturers' and Dealers' Association at a meeting last week decided to hold the fall motor car show, which is to be under tents, the week of October 2 to 9, in one of the big enclosed parks in the heart of the city. There will be three great circus tents for the show. Robert E. Lee was selected as general manager of the show, to work under the direction of the chairman of the committee, John H. Phillips.

**Rayfield Carburetor Detroit Branch**—Owing to the volume of business done in the Detroit territory with the Rayfield carburetor it has become necessary for the Findeisen & Kropf Mfg. Co., of Chicago, to establish a branch at Detroit, where customers may call at all times and see a display of the different models. This branch will occupy the ground floor or store at 997 Woodward avenue, and will be in charge of Otis Funderburk, representative of the Rayfield carburetor in Detroit for some time.

**Falcar Reorganization**—The reorganization of the Fal Motor Co., of Chicago, which has been under way for the past few weeks, has been completed and extends through every department. The liabilities have been taken care of and capital assured to take care of the company's growing business. The company has secured the factory and site covering 1½ acres of ground and buildings at Fortieth street and Princeton avenue, where it will have ample manufacturing and railway facilities, and while pending the many modern improvements needed to buildings, the company is turning out its product at the old plant at Lake and May streets. It will be in its new building July 1. The new directorate of the company includes the following: E. H. Marhoefer, president and treasurer, who is identified with the General Motors Co.; E. H. Lowe, secretary and manager, who has been identified with the company since its inception.



5 years ago; H. K. Gilbert, director, vice-president of the Buda Co., maker of motors and transmissions; and H. H. Seaman, director, president of W. S. Seaman & Co., Milwaukee, Wis., body builders.

**Crankshaft Merger**—The Michigan Crankshaft Co., which has been manufacturing crankshafts in Muskegon for the past 4 years, recently reorganized, and has been capitalized at \$50,000. It has taken over the Lansing Grinding Co., and the two concerns have a daily capacity of 150 finished crankshafts. G. M. Ritchie, will act as vice-president and general manager of the new concern.

**Return of W. T. Lewis**—William T. Lewis, chairman of the board of directors of the Mitchell-Lewis Motor Co., of Racine, Wis., accompanied by Mrs. Lewis, has returned from a tour of nearly a whole year in the British isles and through Europe, in a Mitchell car, that undoubtedly sets a record for septuagenarian travel. Both Mr. Lewis and his wife sought this means of taking a vacation and their mileage reached the total of 23,670 miles. Mr. Lewis is 71 years of age.

**New Overland Building**—The Willys-Overland Co., of Toledo, is to have a new building for its engineering department, which will be ready for occupancy about July 1. It is to be a three-story concrete structure containing a mammoth drafting room with overhead skylights. The blue print room is equipped with the most modern apparatus obtainable. The building also will have designing, experimental and model rooms, together with the offices of the chief engineer and designer and his corps of assistants. Also a laboratory

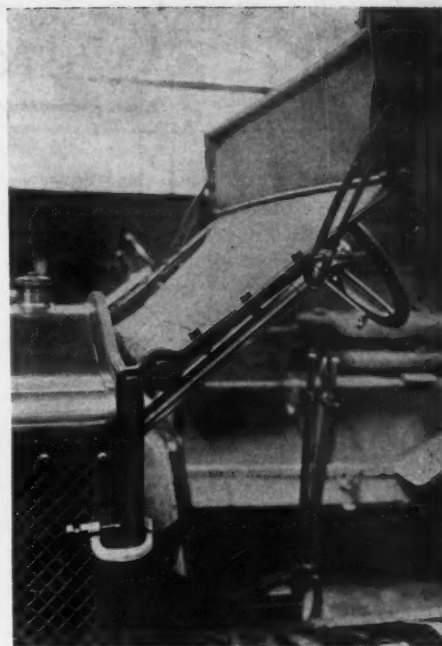
where physical and chemical analyses are made of all crude materials and foundry products that enter into the construction of the cars.

**Ward Goes With Dowse**—Richard Ward has resigned the position of secretary and treasurer of the G & J Tire Co. to take up a similar position under his former president, B. C. Dowse, of the Federal Rubber Mfg. Co.

**New Production Manager**—Henry G. McComb, who for the past 3 years has been connected with the E. R. Thomas Motor Co. as chief engineer, has joined the forces of the Pennsylvania Auto Motor Co. as production manager, at Bryn Mawr, Pa.

**Buick Production**—The Buick Motor Co. now is manufacturing 100 cars a day, this being the limit of the present capacity. It is believed the season's output will reach the sum of 15,000 cars. At present the company is putting high fore-doors on models 27 and 21.

**New Garford Ovens**—Fifteen monster ovens, each as large as one end of a freight car, have been installed in the new wood-working plant of the Garford factory at Elyria, O. One of these receptacles would hold as many loaves of bread as a housewife could make up in a week, but only one car body is baked in them at a time. The chassis is not subjected to this treatment, but the body, wheels and fenders are put in there to dry after each coat of paint they receive. The Garford ovens are heated with steam coils which give a dry heat of from 150 to 200 degrees, according to the kind of work being done. Light colors have to be baked longer than



#### FOR TESTING USE

*This illustration shows a simple type of windscreen used by Renault testers in France. It fits to the dashboard, being held by a clamp on each side. It can be mounted or demounted in 60 seconds*

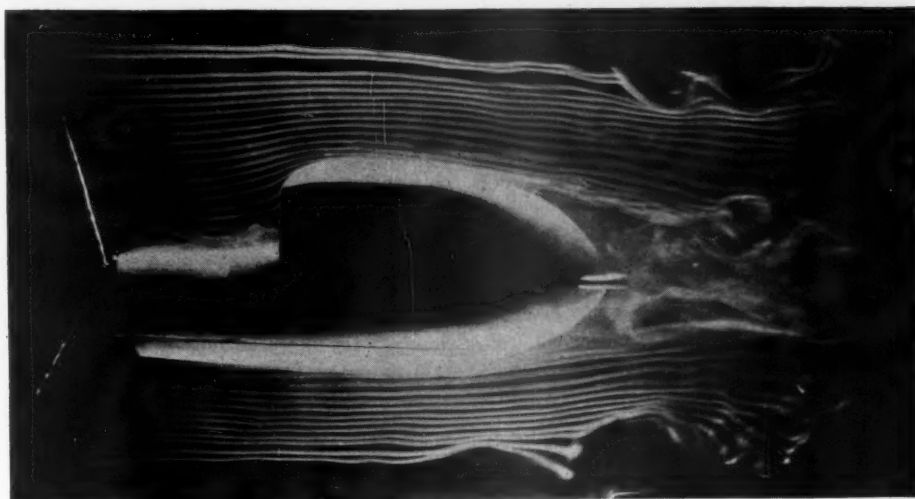
dark ones, and more care is necessary in handling them. Metal parts also have to be dried very carefully to keep the paint from blistering.

**Greiner With Falcar**—The Fal company has engaged A. W. Greiner as manager of its racing team. He also will handle the publicity and advertising. Greiner will drive a Falcar. The other two members of the team will be Pearce and Gelnaw.

**Martin Promoted**—Frank H. Martin, for several years manager of the Chicago branch of the Firestone Tire and Rubber Co., Akron, O., has been made special representative with headquarters at the factory. A. W. Moore, formerly a city salesman of the Chicago branch, has been appointed manager to succeed Mr. Martin.

**Foreigner After Oakland Agency**—Edward King, of London, England, was in Pontiac, Mich., recently as a guest of General Manager Daniels of the Oakland Motor Car Co. Mr. King is considering taking the English and Continental agency for the Oakland car, and desired to familiarize himself with the methods of manufacture.

**Packard Production**—Sales of Packard cars for the first 6 weeks of the 1912 season show a total of 735 as against 584 for the corresponding period last year. The proportion of sizes is 66 per cent 30's, 23.4 per cent sixes and 10.6 per cent 18's. Orders for four-cylinder cars this year are practically equal to the number received last year at this time, so that the specifications for sixes represent the increase in business. A night force is now being put on in the Packard shops, which have a normal working day force in excess of 5,000 men.



#### TESTING EFFECTS OF AIR CURRENTS ON CAR BODIES

*Motor car manufacturers have paid little if any attention to the designing of such bodies as will offer the minimum of head resistance. Aeronautical experimenters, on the other hand, have given this matter very close attention, and by means of models suspended in a suitable tunnel through which a current of air is driven at determined speeds, have been able to obtain valuable data regarding the most suitable forms for dirigible balloons and aeroplane wings and framework. Similar experiments have been carried out by the Gregoire company, of Paris, on a model of a new type of closed body known as the air-ship car.*

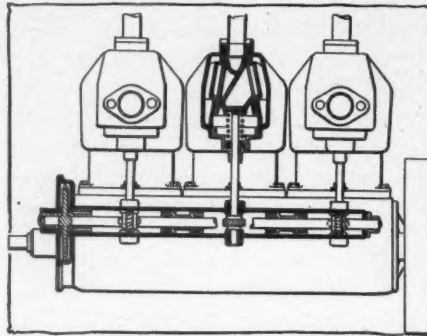
*In addition to instruments measuring the amount of pull at various speeds of the model, the tunnel was so designed that photographs could be taken of the model while under test. Air being invisible, however, colored smoke was driven through the tunnel, with the effect shown in the accompanying illustration. It will be noticed that there is no abrupt break of the air currents at the front of the vehicle, and that the air closes in at the rear with the least amount of disturbance. Not only does this diminish the power necessary for driving the car at a given speed, but it practically prevents the raising of dust at the rear.*

# Current Motor Car Patents

**THOMAS Rotary-Valve Engine—No. 991,670**, dated May 9; to Edwin L. Thomas, Buffalo, N. Y.—As illustrated herewith, this patent relates to an explosion engine comprising two working cylinders, pistons arranged in the cylinders and a valve mechanism having a conical casing which is provided at its end with a fuel inlet port and on different parts of its side with an exhaust port and with two main ports connected respectively with the cylinders, a conical valve plug rotatable in the casing and having two passages, one of which extends from its ends to its side and is adapted to connect the fuel inlet port successively with the main ports, and a spring operating to press the valve with its small end toward the small end of the casing.

**Motor Car Cement Mixer—No. 991,814**, dated May 9, to Carl E. Akeley, Chicago, Ill.—This patent covers a motor car provided with an apparatus for mixing and applying plastic or adhesive materials. It is shown herewith, and the mixer is a combination of a receptacle for dry material having a discharge opening in the lower part thereof, a feed wheel having openings adapted to register one after another with the discharge opening, means for actuating the feed wheel, a compressed air supply connection having a discharge opening in the receptacle adjacent to the feed wheel, a nozzle connected with the discharge opening and means for supplying liquid under pressure to the nozzle of the device.

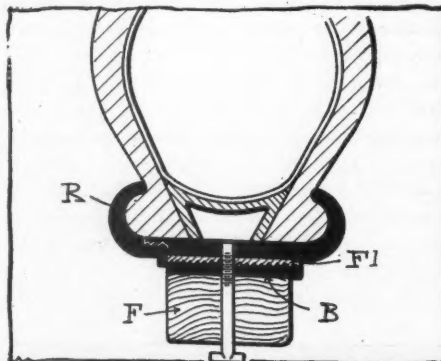
**Gordon Cushion Tire—No. 991,612**, dated May 9; to Simon Gordon, Washington, D. C.—As shown in an accompanying illustration, the cushion tire for motor car wheels to which this patent applies, comprises an inner rim portion having two outwardly projecting flanges with inside shoulders at their outer edges, an outer rim portion having two inwardly projecting flanges fitting inside the flanges of the inner rim portion, springs interposed between the two rim portions and two flat elastic rings having their greatest trans-



THOMAS ROTARY VALVE ENGINE

verse dimensions parallel to the plane of the wheel and interposed between the flanges of the two rim portions and retained by the shoulders of the outwardly projecting flanges to make a dirt-tight joint.

**Demountable Rim—No. 989,494**; dated April 11; to A. D. Foucart, Muncy, Pa.—



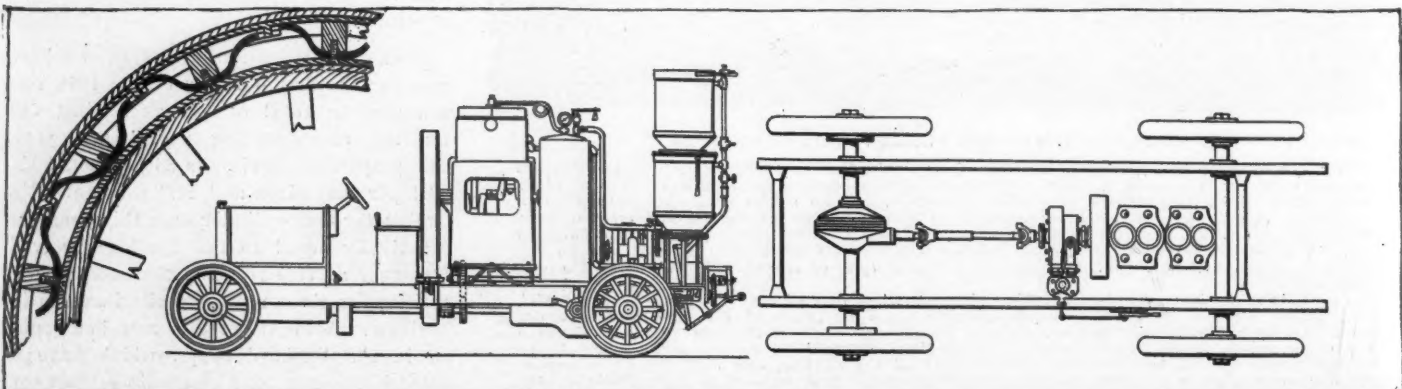
FOUCART DEMOUNTABLE RIM

The felloe F carries a band B with a flange F at one side. The band B has on its outer surface interrupted threaded sections. The demountable rim has a detachable flange R. The demountable rim has on its inner surface threaded sections of less length than the spaces between the threaded sections on the band B. To apply the demountable rim its threaded sections are placed opposite the non-threaded sections of the band B, the rim is then pushed

over the band B into place and given a part circumferential rotation so that the threaded sections of the band B engage with those on the inside of the demountable.

**Rich Hydraulic Transmission Mechanism—No. 991,646**, dated May 9; to Charles Clayton Rich, Mount Vernon, N. Y.—This patent relates to a fluid pressure power transmission mechanism, designed to replace the clutch and gearset of the ordinary motor car. It comprises a motor pump set embodying a casing divided into compartments for the pump and motor respectively, and provided in communication with these compartments with inlet and discharge openings defined by tubular arms, all of which project from the casing and terminate in the same plane; a valve casing adjustably connected directly to the ends of the arms and a valve mounted in the casing and arranged to control the openings. The details of the device are shown in an accompanying illustration on this page.

**Darrow Gyrocycle—No. 991,485**, dated May 9; to Edward N. Darrow, Chicago, Ill.—The gyrocycle covered by this patent is a motor vehicle comprising a main frame, supporting wheels arranged at the front and rear ends of the frame, segmental axle plates secured to the axles of the wheels, means to yieldingly and rotatably connect the plates with the main frame of the machine, bearing wheels connected with the frame and adapted to travel on and engage the axle plates and yieldably support the main frame on the supporting wheels, the latter being permitted to turn in frame to steer the machine; a gyroscope arrangement and operated in the main frame to maintain the equilibrium of the machine, a guide track arranged in the frame of the machine, a guide rail adapted to engage and travel in the guide rack, a stop member secured to the gyroscope, a spring detent adapted to be engaged with the stop and means for driving the gyroscope which is part of this patented device.



GORDON CUSHION TIRE

AKELEY CEMENT MIXER

RICH HAUDRAULIC TRANSMISSION MECHANISM





# Development Briefs



## Four-Wheel Jack

A JACK designed to lift all four wheels of the car at once, so that the car when in the garage can be jacked up in a few seconds, thereby taking the weights off the wheels, is manufactured by the Reading Automobile Co., Reading, Pa. This jack consists of two adjustable steel frames, one for the front axle, the other for the rear axle. Connecting the bases of these frames is a 12-foot steel chain which can be shortened or lengthened to make the jack adaptable to different wheelbase lengths. The jack is placed on the garage floor beneath the car and to elevate the front framework is placed angularly against the front axle and the rear framework similarly against the rear axle. This done, a differential jack at the forward end is operated which moves the car back a few inches, thereby bringing both the frameworks to a vertical and raising the car 3 or 4 inches from the ground. It is claimed that this work does not occupy more than 40 seconds. The illustrations show the framework of the jack beneath the front and rear axle.

## Triplex Facilitator

A recently patented device to make the starting of the motor easy is marketed by A. M. Walstrom, Minneapolis, Minn. It is arranged to be attached to a motor to combine the compression release and the priming operation. This is done by releasing the compression in the cylinder and sending the released air through an atomizing nozzle, from which it is directed into the intake manifold, thus priming the motor all the time it is being cranked. The gasoline supply pipe is connected to the atomizing nozzle at C, the atomizer having a needle valve which permits gasoline to enter when it is opened. It is claimed that the construction of this nozzle allows the released air passing through it to atomize gasoline of even the lowest

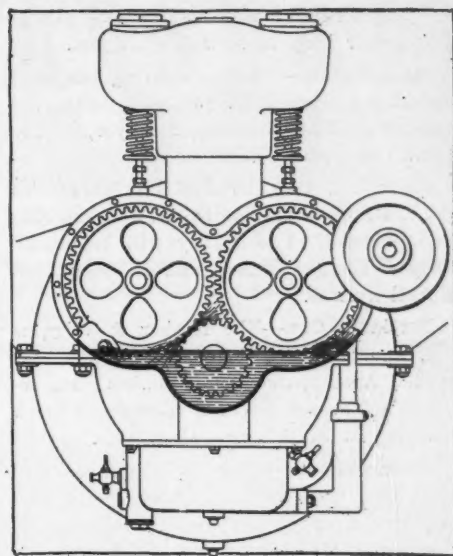
grades and that the vapor is brought to the cylinder before it has time to condense.

An automatic shut-off valve A also is provided to close the pipe as soon as an explosion takes place in one of the cylinders, to prevent the burned gases from being forced back into the intake manifold. When cranking the motor in the usual way the device is operated by the rod D extending through the radiator. Or it can be operated by the lever B and the motor started from the seat in conjunction with the Pullman starter manufactured by the same company.

## Timing Gear Lubrication

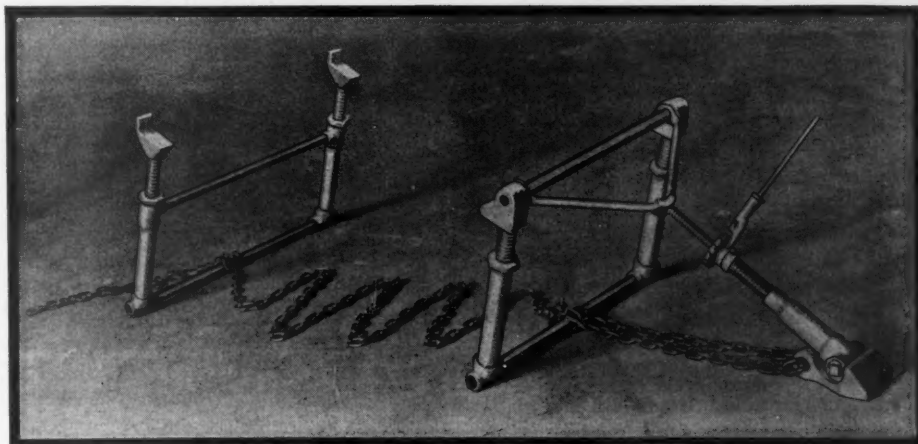
A departure from general methods used in lubricating motor-car timing gears has been brought out by the Ohio Motor Car Co., of Cincinnati, Ohio. The new feature is said to do away entirely with the necessity of packing the front gearcase with grease or heavy oil, and with the carbonizing that results from the grease or heavy oil working over into the crankcase through the front main bearing.

In the new system, the gears are lubri-

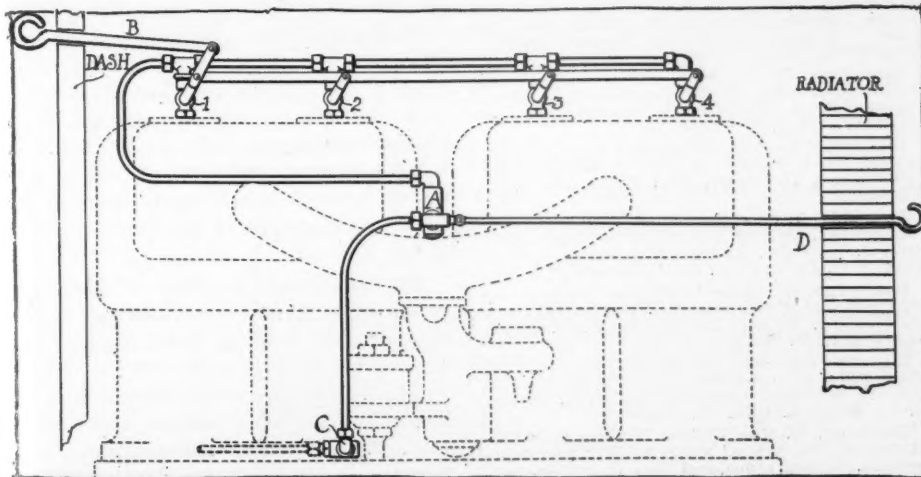


OHIO TIMING GEAR LUBRICATION

cated from the front half of the crankcase. To accomplish this, the compartment which divides the timing gearcase from the front half of the crankcase is drilled and the oil allowed to rise to the same level in the gear-



THE FOUR-WHEEL JACK



THE TRIPLEX FACILITATOR FOR EASIER STARTING OF MOTOR CARS

case as it is in the crankcase. The lower portion and teeth of the crankshaft gear dip into the oil and a very satisfactory gear-driven oiling system is obtained.

## The Stover Pipe Wrench

In connection with its line of quick adjustable wrenches, the Wright Wrench and Forging Co., of Canton, O., is marketing a new pipe wrench, called the Stover. This is especially designed for the motorist as it is unusually light in weight.

## Horsey No-Cement Patches

The Horsey Manufacturing Co., of Cleveland, O., has placed on the market a patch for the repair of inner tubes, called the Horsey No-Cement Patch. The special feature of this patch is that no cement or acid is used in making the repair.



# Brief Business Announcements

**NEW WASHINGTON, O.**—Edward Geissmann has opened a new garage and repair shop in New Washington.

**Cleveland, O.**—Charles Herring has been appointed distributor of Reo cars for southern Ohio by Manager Moyer, of the local Reo Sales Co.

**Cleveland, O.**—The Jackson Motor Car Co. has been organized to sell Jackson cars in Cleveland. The agency will be practically a factory branch and is located on Euclid avenue.

**Portland, Ore.**—The Archer & Wiggins Co., supply dealer of Portland, has succeeded Archer, Coombs & Co., and has secured a 3-year lease of a three-story brick building at Sixth and Oak streets.

**Cleveland, O.**—The Anderson garage, East One Hundred and Tenth street and Superior avenue, has been purchased by Conklin & McKillett, who will use it for storage and general garage purposes.

**Boston, Mass.**—George Veasey, who has been manager of the Boston branch of the Studebaker company for several months, has resigned to accept a position with the sales force of the Boston branch of the Welch company.

**Columbus, O.**—The DeTamble Motor Sales Co., a partnership composed of Rusk & Hallock, which has been located on the corner of Sixth avenue and High street, will move to a new salesroom at 244 North Fourth street.

**Columbus, O.**—Frank M. Wolgamott of the garage firm of Burroughs & Wolgamott has purchased the interest of Mr. Burroughs and will operate the garage and repair shop at 186 East Fourth street, under the name of the Guarantee Motor Car Co.

**Akron, O.**—The Auto Appliance Mfg. Co. has been incorporated with a capital of \$50,000 to manufacture and sell motor car equipment and accessories. The incorporators are A. Auble, Jr., F. Oscar Evans, Charles W. Steele, A. J. Wills and M. Evans.

**Columbus, O.**—The Franklin Cycle and Supply Co., of 71 East Gay street, has taken the central Ohio agency for the Schacht. C. E. Barr, manager of the concern, will soon start to build a two-story sales agency and garage at 142-144 East Gay street which is expected to be ready for occupancy by August 1.

**Detroit, Mich.**—The Warren Motor Car Co. reports the following list of agencies established during the past week: A. & A. Lund, Lasita, Kan.; A. G. Williams, Syracuse, N. Y.; Fred Reule, LaFayette, Ind.; W. C. Rae, Red Lodge, Mont.; Ideal Auto Co., Des Moines, Ia.; George A. Hood, Winston-Salem, N. C.; C. P. McClure, Oskaloosa, Ia.; Boone Auto Co., Boone, Ia.;

W. A. Hanford, So. Norwalk, Conn.; Warren Sales Co., Oklahoma City, Okla.; Auto Service Co., Canton, O.

**Toledo, O.**—The Blevins Auto Sales Co. has concluded arrangements to handle the Lozier line of cars in this territory.

**Denver, Colo.**—Nelson S. Gotshall is now a westerner, having recently joined the Krebs-Covington Co., of Denver, Colo., State agent for the Lozier car.

**Cleveland, O.**—The Booth Demountable Rim Co. has increased its capital stock from \$100,000 to \$200,000 to provide for additions and extensions to the plant.

**Cleveland, O.**—The Ford Motor Co. has moved to its new building, 4400 Euclid avenue. The Grabowsky Truck Co. will open an agency in the building formerly occupied by the Ford company at East Nineteenth street and Euclid avenue.

**Cleveland, O.**—The R. C. H. Sales Co. has opened a branch in Cleveland to sell the Hupp-Yeats electric. Temporary headquarters have been established at 1993 East Thirteenth street. H. D. Haupt is manager.

**Columbus, O.**—The United Motors-Columbus company, central Ohio agents for the Maxwell and Columbia, has moved from 62 East Spring street to a salesroom and repair shop at 246-248 North Fourth street. The building was erected especially for the concern and consists of a salesroom and office 100 by 50 feet. The repair shop is 128 by 60 feet. The com-

## RECENT INCORPORATIONS

**Newark, N. J.**—Hoagland-Thayer Co., capital stock \$25,000; to manufacture motors, engines and motor cars; incorporators: A. M. Hoagland, G. H. Thayer and E. P. Thayer.

**Dover, Del.**—Seeroad Lamp Swivel Co., capital stock \$400,000; to deal in automatic lamps, swivels, brackets and motor car fittings; incorporators: F. R. Hansel, George Nartin and S. C. Seymour.

**Cleveland, O.**—C. & M. Garage and Sales Co., capital stock \$5,000; incorporators: F. B. Conklin, B. J. McKilip, E. Younger, W. K. Caldwell and F. S. Castle.

**Indianapolis, Ind.**—Wabash Garage Co., capital stock \$2,500; to deal in motor cars; directors: I. D. White, Will Wood and G. R. Hopkins.

**Memphis, Tenn.**—Memphis Automobile and Garage Co., capital stock \$50,000; incorporators: J. W. Falls, R. Henry Lake, M. C. Perkins, S. T. Carnes and E. B. Lemaster.

**Indianapolis, Ind.**—American Automobile Mfg. Co., capital stock \$1,000,000; directors: H. K. Cole, Powell McRoberts, A. C. Davis and Berton B. Bales.

**Denver, Colo.**—A. P. Heyer Co., capital stock \$50,000; to manufacture motor cars and electric vehicles; incorporators: A. P. Heyer, G. D. Smith and W. W. Crane.

**Brooklyn, N. Y.**—William W. Hawkins Engineering Co., capital stock \$25,000; to manufacture, repair, store and deal in motor cars, motors, etc.; incorporators: P. J. McDonald, Alex Bernardik and Richard F. Woodward.

pany will repair only cars sold by it and will not do a general garage business. F. P. Corbett is manager.

**Sheboygan, Wis.**—J. F. Kausler has opened a general repair shop and machine works at 1315 South Eighth street, and will have a small public garage in connection.

**Beloit, Wis.**—The Derbyshire and Lones Electrical Co. has moved from Beloit to Ottawa, Ill. The company does a large business in ignition and lighting systems and supplies.

**Davenport, Ia.**—The Thomas Auto Co., C. B. Ceurvorst superintendent and general manager, handling the Thomas cars exclusively and doing a general repairing and livery business, has been established in Davenport.

**Milwaukee, Wis.**—James F. Howard, 322-324 East North avenue, has been appointed representative of the Dan Patch cars, made by M. W. Savage Factories Co., of Auburn, Ind. The Cole is distributed by Mr. Howard, also.

**Cleveland, O.**—The Cleveland Auto Service Co. has been incorporated with a capital of \$10,000 to operate a taxicab and livery concern. The incorporators are B. M. Baur, W. J. Patterson, F. L. Prentiss, E. H. Holingren and F. P. Cadle.

**Toledo, O.**—A change of location has been made by the Madison Auto Tire and Repair Co., of Toledo, from the corner of Madison and Ontario streets to 241 Ontario street. It has been engaged in the tire repair business for several years, and will also be local distributor of Hartford tires.

**Cleveland, O.**—The Grabowsky Power Wagon Co. has been incorporated with an authorized capital of \$30,000 to act as agent for and to manufacture motor cars and motor trucks of all kinds. The incorporators are Maurice Rohrheimer, George H. Hansen, Vernon L. Sanford, M. Kluger and E. L. Geismer.

**Milwaukee, Wis.**—Ground was broken last week for the new garage and salesroom of the Kisselkar Co., of Milwaukee, Wis. It will be four stories high, with ground dimensions of 50 by 160 feet. It will be situated just south of Grand avenue on Seventh street, nearly opposite the big Packard garage of the Welch Brothers Motor Car Co.

**Bowling Green, O.**—One of the most complete garages in northwestern Ohio is that of the Bowling Green Garage Co., just opened. It is a 70 by 140 cement building. The general manager is Richard Bates, and the other officers are: President, F. P. Riegley; vice-president, J. D. Mercer; secretary, B. C. Harding; treasurer, A. E. Royce.